May 5, 2009

VIA ELECTRONIC FILING

James Hoffman
Crown Investments Corporation of Saskatchewan
400-2400 College Avenue
Regina, Saskatchewan
S4P 1C8

Re: *North American Electric Reliability Corporation*

Dear Mr. Hoffman:

The North American Electric Reliability Corporation ("NERC") hereby submits this notice of filing of interpretation (b) of Requirement R17 as found in BAL-005-0 — Automatic Generation Control, a NERC Reliability Standard, that is contained in Exhibit A-1 to this notice. NERC had sought Federal Energy Regulatory Commission approval of interpretation (a) of Requirement R17 in BAL-005-0 — Automatic Generation Control that NERC submitted on December 19, 2007, but withdrew that request on April 15, 2008. The formal interpretation (b) has been approved by the NERC Board of Trustees.

NERC's notice consists of the following:

- This transmittal letter;
- A table of contents for the entire notice;
- A narrative description explaining how the formal interpretation meets the reliability goal of BAL-005-0;
- Formal interpretation submitted for approval (**Exhibit A-1**);
- Reliability Standard BAL-005-0b that includes the appended interpretation (**Exhibit A-2**); and
- The complete development record of the formal interpretation (**Exhibit A-3**).

Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/ Rebecca J. Michael
Rebecca J. Michael

Attorney for North American Electric Reliability Corporation

BEFORE THE
CROWN INVESTMENT CORPORATION
OF THE PROVINCE OF SASKATCHEWAN

NORTH AMERICAN ELECTRIC)
RELIABILITY CORPORATION)

NOTICE OF FILING OF THE NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION OF FORMAL INTERPRETATION TO RELIABILITY STANDARDS

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May 5, 2009

TABLE OF CONTENTS

I. INTRODUCTION

The North American Electric Reliability Corporation ("NERC") hereby submits notice of interpretation (b) to BAL-005-0 — Automatic Generation Control, Requirement R17, a NERC Reliability Standard. No modification to the language contained in the specific requirement is being proposed. However, NERC has included for information the approved Reliability Standard to which the proposed interpretation is appended.

The NERC Board of Trustees approved the formal interpretation (b) to BAL-005-0 — Automatic Generation Control, Requirement R17 on February 12, 2008. Exhibit A-1 to this filing sets forth the formal interpretation. Exhibit A-2 contains the affected Reliability Standard containing the appended interpretation, in this case, BAL-005-0b – Automatic Generation Control. Exhibit A-3 contains the complete development record of the formal interpretation (b) to BAL-005-0 — Automatic Generation Control, Requirement R17.

NERC filed this formal interpretation (b) with the Federal Energy Regulatory Commission ("FERC") on April 15, 2008, and is filing this formal interpretation with the other applicable governmental authorities in Canada.

II. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to the following:

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President and Chief Executive Officer
David N. Cook
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III. BACKGROUND

a. Reliability Standards Development Procedure

NERC develops reliability standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure and the NERC *Reliability Standards Development Procedure*, which is incorporated into the Rules of Procedure as Appendix 3A. NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing reliability standards and thus satisfy certain of the criteria for approving reliability standards.

The development process is open to any person or entity with a legitimate interest in the reliability of the bulk power system. NERC considers the comments of all stakeholders and a vote of stakeholders and the NERC Board of Trustees is required to approve a reliability standard for submission to the applicable governmental authorities.

Additionally, all persons who are directly or materially affected by the reliability of the North American bulk power systems are permitted to request an interpretation of the reliability standard, as discussed in NERC's *Reliability Standards Development Procedure*. When requested, NERC will assemble a team with the relevant expertise to address the interpretation request and, within 45 days, present a formal interpretation for industry ballot. If approved by the ballot pool and the NERC Board of Trustees, the interpretation is appended to the reliability standard and filed for approval by the applicable governmental authorities to be made effective when approved. When the affected reliability standard is next revised using the reliability standards development process, the interpretation will then be incorporated into the reliability standard.

The formal interpretation set out in Exhibit A-1 has been developed and approved by industry stakeholders using NERC's *Reliability Standards Development Procedure*; it has been approved by the NERC Board of Trustees as outlined in the Introduction section above.

IV. BAL-005-0 — Automatic Generation Control, Requirement R17

In Section IV(a), NERC explains the need for and development of the formal interpretation (b) of BAL-005-0 — Automatic Generation Control, Requirement R17. In addition, NERC demonstrates that the formal interpretation is consistent with the stated reliability goal of the Reliability Standards and the requirements thereunder. Set forth immediately below in Section IV(b) are the stakeholder ballot results and how stakeholder comments were considered and addressed by the team assembled to provide the interpretation.

The complete development record for the formal interpretation is set forth in Exhibit A-3. Exhibit A-3 includes the request for interpretation, the response to the request for interpretation, the ballot pool and the final ballot results by registered ballot body members, stakeholder comments received during the balloting and how those comments were considered.

a. Justification of Formal Interpretation

The stated purpose of BAL-005-0 — Automatic Generation Control ("AGC"), in relevant part, is to establish requirements for balancing AGC necessary to calculate Area Control Error ("ACE"). Requirement R17 of this Reliability Standard states:

> **Requirement R17.** Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:
>
> | Device | Accuracy |
> |---|---|
> | Digital frequency transducer | ≤ 0.001 Hz |
> | MW, MVAR, and voltage transducer | ≤ 0.25 % of full scale |
> | Remote terminal unit | ≤ 0.25 % of full scale |
> | Potential transformer | ≤ 0.30 % of full scale |
> | Current transformer | ≤ 0.50 % of full scale |

On July 31, 2007, NERC received a request for formal interpretation from Portland General Electric ("PGE") of Requirement R17 of BAL-005-0 – Automatic Generation Control. As noted above, NERC previously filed for approval with FERC of an interpretation (a) for this same requirement that explained that the phrase "annually check and calibrate" applies only to devices within the operations control room. The Board of Trustees approved that interpretation at its May 2, 2007 meeting. PGE subsequently stated that it believes that interpretation (a) still leaves several areas of ambiguity and asks:

Which equipment is included in the phrase "measuring devices as listed below," in particular, does this phrase apply:

(a) Only to equipment within the operations control room?
(b) Only to equipment that provides values used to calculate AGC ACE?
(c) Only to equipment that provides values to PGE's SCADA system?
(d) Only to equipment owned or operated by the Balancing Authority?
(e) Only to new of replacement equipment?
(f) To all such equipment that a Balancing Authority owns or operates?

PGE believes this standard is intended to apply to Balancing Authorities' new or replacement equipment that provides values used to calculate AGC ACE. A broader interpretation to include existing equipment could cause utilities to spend significant amounts of money with little or no actual improvement to system reliability.

In accordance with the *Reliability Standards Development Procedure,* NERC selected the Resources Subcommittee of the NERC Operating Committee as its subject matter expert to consider the question and develop the interpretation response. The Resources Subcommittee designated its Frequency Task Force the activity. The task force provided the following interpretation (b):

"As noted in the existing interpretation (a), BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the reporting or compliance ACE equation or provide real-time time error or frequency information to the system operator. Frequency inputs from other sources that are for reference only are excluded. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the Balancing Authority; however the Balancing Authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R17. The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated

equipment and replaced if the devices do not meet the required level of accuracy."

Thus, the formal interpretation (b) is that BAL-005-0, Requirement 17 requires that time error and frequency devices that serve as input into the reporting or compliance of the ACE equation, whether in the operations control room or external to the operations control room, must be annually checked and calibrated. This formal interpretation (b) acknowledges and expands upon interpretation (a) such that time error and frequency devices located external to the operations control room, such as instrument transformers and transducers that serve to transmit said time error and frequency information from a source remote to the control center are included in the scope of the requirement per interpretation (b).

This formal interpretation is consistent with the reliability objective of Requirement R17 of BAL-005-0 and with the overall goal of the Reliability Standard itself. The interpretation properly acknowledges that Requirement R17 expressly pertains to time error and frequency devices and identifies the Balancing Authority as the applicable entity. The interpretation also recognizes that the Balancing Authority has ultimate responsibility for compliance with the requirement as part of its core functions but may not necessarily be the owner of the time error and frequency devices on which the accuracy of the ACE equation depends. This interpretation establishes an obligation for the Balancing Authority to ensure the equipment owner has an established program to comport with this expectation; alternately, the Balancing Authority could choose to install and maintain its own equipment to obtain this valuable information. Further, this requirement is directed only to time error and frequency devices and not to other inputs to the ACE equation.

In the first instance, other inputs to the ACE equation are not captured in the first sentence of Requirement R17, namely tie-line flows for calculation of net actual interchange. The interpretation cannot expand or change the requirement in a NERC Reliability Standard. By allowing the inclusion of other metering devices in the interpretation of Requirement R17, the scope of the requirement as stated and as approved by the Commission is dramatically expanded. The use of an interpretation for this purpose does not support the intent of an interpretation process as included in the *Reliability Standards Development Procedure*. Modifications to the Reliability Standard would more appropriately be considered when NERC addresses BAL-005-0 Reliability Standard as part of Project 2007-05 of its Reliability Standards Development Plan: 2008-2010, a project currently in progress. This plan was submitted for information purposes on October 11, 2007.

In the second instance, the Balancing Authority is already required to perform tie-line MWh checks hourly through Requirement R13 of BAL-005-0. If errors are found, the Balancing Authority shall then adjust the metering error component of its ACE equation to compensate until such time the equipment is re-calibrated or replaced. Therefore, Requirement R13 addresses the accuracy of tie-line values in the calculation of ACE. Coupled with the requirement to calibrate frequency and time error devices in Requirement R17, the major inputs to the ACE equation are addressed.

b. Summary of the Reliability Standard Development Proceedings

On July 31, 2007, NERC received a request for formal interpretation of Requirement 17 of the BAL-005-0 Reliability Standard, the second formal request for interpretation of this requirement. Pursuant to its *Reliability Standards Development*

Procedure, NERC selected the Resources Subcommittee of the NERC Operating Committee to prepare the interpretation, who assigned its Frequency Task Force the responsibility to develop the requested interpretation. The Resources Subcommittee, through it Frequency Task Force, provided the formal interpretation (b) that directs that time error and frequency devices that are located within and external to the control center are to be included in this requirement. Further, the interpretation provided that devices and the tolerances listed in Requirement R17 that do not serve to provide time error or frequency inputs to the ACE equation are for informational purposes only. The interpretation (b) further stated that Requirement R17 pertains to existing, modified, or new installation of time error and frequency devices and that the devices without the capability of being calibrated should be verified to be accurate against other benchmarks or be replaced.

NERC conducted the initial ballot of interpretation (b) from October 18–October 29, 2007 and achieved a quorum of 96.48 percent and a weighted segment approval of 85.91 percent, but the initial ballot also included a number of negative ballots with comments. When the Frequency Task Force reviewed the comments, they decided to revise the interpretation to improve its clarity, and posted the revised interpretation for a new 30-day pre-ballot review period that took place from November 19–December 18, 2007. A second initial ballot took place from December 19, 2007–January 4, 2008. The ballot results indicated a 98.44 percent weighted segment approval with 84.77 percent of the ballot pool participating in the vote. However, three negative votes with comments were received that required a recirculation ballot.

Two commenters indicated that the interpretation (b) conflicts with the previous interpretation (a) and that NERC should clearly state that the current interpretation (b) supersedes interpretation (a). NERC agreed with this comment and noted the approach when the recirculation ballot took place. Two commenters stated that the devices listed in Requirement R17 for reference only should be removed from the requirement. The task force agreed but indicated that the interpretation process cannot make changes to requirements.

NERC conducted the recirculation ballot to the second initial ballot from January 14–January 23, 2008. With 87.65 percent quorum, the interpretation achieved a weighted segment approval of 98.17 percent. NERC thereby recommended that the Board of Trustees approve interpretation (b) for Requirement R17 of BAL-005-0 at its February 12, 2008 meeting and retire interpretation (a) that the Board approved in May 2007. The NERC Board of Trustees approved both actions at the February 2008 meeting.

Respectfully submitted,

/s/ Rebecca J. Michael

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Exhibit A-1

Interpretation of Reliability Standard
BAL-005-0, Requirement R17

Request: *PGE requests clarification regarding the measuring devices for which the requirement applies, specifically clarification if the requirement applies to the following measuring devices:*

- *Only equipment within the operations control room*
- *Only equipment that provides values used to calculate AGC ACE*
- *Only equipment that provides values to its SCADA system*
- *Only equipment owned or operated by the BA*
- *Only to new or replacement equipment*
- *To all equipment that a BA owns or operates*

BAL-005-1

R17. Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25% of full scale
Remote terminal unit	≤ 0.25% of full scale
Potential transformer	≤ 0.30% of full scale
Current transformer	≤ 0.50% of full scale

Existing Interpretation Approved by Board of Trustees May 2, 2007

BAL-005-0, Requirement 17 requires that the Balancing Authority check and calibrate its control room time error and frequency devices against a common reference at least annually. The requirement to "annually check and calibrate" does not address any devices outside of the operations control room.

The table represents the design accuracy of the listed devices. There is no requirement within the standard to "annually check and calibrate" the devices listed in the table, unless they are included in the control center time error and frequency devices.

Interpretation:

As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the reporting or compliance ACE equation or provide real-time time error or frequency information to the system operator. Frequency inputs from other sources that are for reference only are excluded. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the Balancing Authority; however the Balancing Authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17. The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

Exhibit A-2

Reliability Standard BAL-005-0b

A. Introduction

1. Title: **Automatic Generation Control**

2. Number: BAL-005-0b

3. Purpose:

This standard establishes requirements for Balancing Authority Automatic Generation Control (AGC) necessary to calculate Area Control Error (ACE) and to routinely deploy the Regulating Reserve. The standard also ensures that all facilities and load electrically synchronized to the Interconnection are included within the metered boundary of a Balancing Area so that balancing of resources and demand can be achieved.

4. Applicability:

4.1. Balancing Authorities

4.2. Generator Operators

4.3. Transmission Operators

4.4. Load Serving Entities

5. Effective Date: Immediately after approval of applicable regulatory authorities.

B. Requirements

R1. All generation, transmission, and load operating within an Interconnection must be included within the metered boundaries of a Balancing Authority Area.

R1.1. Each Generator Operator with generation facilities operating in an Interconnection shall ensure that those generation facilities are included within the metered boundaries of a Balancing Authority Area.

R1.2. Each Transmission Operator with transmission facilities operating in an Interconnection shall ensure that those transmission facilities are included within the metered boundaries of a Balancing Authority Area.

R1.3. Each Load-Serving Entity with load operating in an Interconnection shall ensure that those loads are included within the metered boundaries of a Balancing Authority Area.

R2. Each Balancing Authority shall maintain Regulating Reserve that can be controlled by AGC to meet the Control Performance Standard.

R3. A Balancing Authority providing Regulation Service shall ensure that adequate metering, communications, and control equipment are employed to prevent such service from becoming a Burden on the Interconnection or other Balancing Authority Areas.

R4. A Balancing Authority providing Regulation Service shall notify the Host Balancing Authority for whom it is controlling if it is unable to provide the service, as well as any Intermediate Balancing Authorities.

R5. A Balancing Authority receiving Regulation Service shall ensure that backup plans are in place to provide replacement Regulation Service should the supplying Balancing Authority no longer be able to provide this service.

R6. The Balancing Authority's AGC shall compare total Net Actual Interchange to total Net Scheduled Interchange plus Frequency Bias obligation to determine the Balancing Authority's ACE. Single Balancing Authorities operating asynchronously may employ alternative ACE calculations such as (but not limited to) flat frequency control. If a Balancing Authority is unable to calculate ACE for more than 30 minutes it shall notify its Reliability Coordinator.

R7. The Balancing Authority shall operate AGC continuously unless such operation adversely impacts the reliability of the Interconnection. If AGC has become inoperative, the Balancing

Authority shall use manual control to adjust generation to maintain the Net Scheduled Interchange.

R8. The Balancing Authority shall ensure that data acquisition for and calculation of ACE occur at least every six seconds.

R8.1. Each Balancing Authority shall provide redundant and independent frequency metering equipment that shall automatically activate upon detection of failure of the primary source. This overall installation shall provide a minimum availability of 99.95%.

R9. The Balancing Authority shall include all Interchange Schedules with Adjacent Balancing Authorities in the calculation of Net Scheduled Interchange for the ACE equation.

R9.1. Balancing Authorities with a high voltage direct current (HVDC) link to another Balancing Authority connected asynchronously to their Interconnection may choose to omit the Interchange Schedule related to the HVDC link from the ACE equation if it is modeled as internal generation or load.

R10. The Balancing Authority shall include all Dynamic Schedules in the calculation of Net Scheduled Interchange for the ACE equation.

R11. Balancing Authorities shall include the effect of ramp rates, which shall be identical and agreed to between affected Balancing Authorities, in the Scheduled Interchange values to calculate ACE.

R12. Each Balancing Authority shall include all Tie Line flows with Adjacent Balancing Authority Areas in the ACE calculation.

R12.1. Balancing Authorities that share a tie shall ensure Tie Line MW metering is telemetered to both control centers, and emanates from a common, agreed-upon source using common primary metering equipment. Balancing Authorities shall ensure that megawatt-hour data is telemetered or reported at the end of each hour.

R12.2. Balancing Authorities shall ensure the power flow and ACE signals that are utilized for calculating Balancing Authority performance or that are transmitted for Regulation Service are not filtered prior to transmission, except for the Anti-aliasing Filters of Tie Lines.

R12.3. Balancing Authorities shall install common metering equipment where Dynamic Schedules or Pseudo-Ties are implemented between two or more Balancing Authorities to deliver the output of Jointly Owned Units or to serve remote load.

R13. Each Balancing Authority shall perform hourly error checks using Tie Line megawatt-hour meters with common time synchronization to determine the accuracy of its control equipment. The Balancing Authority shall adjust the component (e.g., Tie Line meter) of ACE that is in error (if known) or use the interchange meter error (I_{ME}) term of the ACE equation to compensate for any equipment error until repairs can be made.

R14. The Balancing Authority shall provide its operating personnel with sufficient instrumentation and data recording equipment to facilitate monitoring of control performance, generation response, and after-the-fact analysis of area performance. As a minimum, the Balancing Authority shall provide its operating personnel with real-time values for ACE, Interconnection frequency and Net Actual Interchange with each Adjacent Balancing Authority Area.

R15. The Balancing Authority shall provide adequate and reliable backup power supplies and shall periodically test these supplies at the Balancing Authority's control center and other critical locations to ensure continuous operation of AGC and vital data recording equipment during loss of the normal power supply.

R16. The Balancing Authority shall sample data at least at the same periodicity with which ACE is calculated. The Balancing Authority shall flag missing or bad data for operator display and

archival purposes. The Balancing Authority shall collect coincident data to the greatest practical extent, i.e., ACE, Interconnection frequency, Net Actual Interchange, and other data shall all be sampled at the same time.

R17. Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25 % of full scale
Remote terminal unit	≤ 0.25 % of full scale
Potential transformer	≤ 0.30 % of full scale
Current transformer	≤ 0.50 % of full scale

C. Measures

Not specified.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Balancing Authorities shall be prepared to supply data to NERC in the format defined below:

1.1.1. Within one week upon request, Balancing Authorities shall provide NERC or the Regional Reliability Organization CPS source data in daily CSV files with time stamped one minute averages of: 1) ACE and 2) Frequency Error.

1.1.2. Within one week upon request, Balancing Authorities shall provide NERC or the Regional Reliability Organization DCS source data in CSV files with time stamped scan rate values for: 1) ACE and 2) Frequency Error for a time period of two minutes prior to thirty minutes after the identified Disturbance.

1.2. Compliance Monitoring Period and Reset Timeframe

Not specified.

1.3. Data Retention

1.3.1. Each Balancing Authority shall retain its ACE, actual frequency, Scheduled Frequency, Net Actual Interchange, Net Scheduled Interchange, Tie Line meter error correction and Frequency Bias Setting data in digital format at the same scan rate at which the data is collected for at least one year.

1.3.2. Each Balancing Authority or Reserve Sharing Group shall retain documentation of the magnitude of each Reportable Disturbance as well as the ACE charts and/or samples used to calculate Balancing Authority or Reserve Sharing Group disturbance recovery values. The data shall be retained for one year following the reporting quarter for which the data was recorded.

1.4. Additional Compliance Information

Not specified.

2. Levels of Non-Compliance

Not specified.

E. Regional Differences

None identified.

F. Associated Documents

1. Appendix 1 – Interpretation of Requirement R17 (February 12, 2008).

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed "Proposed" from Effective Date	Errata
0a	December 19, 2007	Added Appendix 1 – Interpretation (a) of R17 approved by BOT on May 2, 2007	Addition
0a	January 16, 2008	Section F: added "1."; changed hyphen to "en dash." Changed font style for "Appendix 1" to Arial.	Errata
0b	February 12, 2008	Replaced Appendix 1 – Interpretation (a) of R17 with Interpretation (b)approved by BOT on February 12, 2008.	Replacement

Appendix 1

Request: *PGE requests clarification regarding the measuring devices for which the requirement applies, specifically clarification if the requirement applies to the following measuring devices:*

- *Only equipment within the operations control room*
- *Only equipment that provides values used to calculate AGC ACE*
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Interpretation:

As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the reporting or compliance ACE equation or provide real-time time error or frequency information to the system operator. Frequency inputs from other sources that are for reference only are excluded. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the Balancing Authority; however the Balancing Authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17. The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

Exhibit A-3

Record of Development of Formal Interpretation for BAL-005-0, Requirement R17

Interpretation - BAL-005 - Automatic Generation Control
Project 2007-25

Status

Approved by the Board of Trustees on February 12, 2008.

Purpose / Industry Need

In accordance with the Reliability Standards Development Procedure, the interpretation must be posted for a 30-day pre-ballot review, and then balloted. There is no public comment period for an interpretation. Balloting will be conducted following the same method used for balloting standards. If the interpretation is approved by its ballot pool, then the interpretation will be appended to the standard and will become effective when adopted by the NERC Board of Trustees and approved by the applicable regulatory authorities. The interpretation will remain appended to the standard until the standard is revised through the normal standards development process. When the standard is revised, the clarifications provided by the interpretation will be incorporated into the revised standard.

Proposed Standard	Supporting Documents	Comment Period	Comments Received	Response to Comments
Posted for Board of Trustees Approval on February 12, 2008 Interpretation **(23)** BAL-005-1, Requirement 17 - Automatic Generation Control				
Announcement **(20)** Interpretation **(19)** BAL-005-1, Requirement 17 - Automatic Generation Control Posted for 10-day Recirculation Ballot Window		January 14– January 23, 2008 (closed)		Announcement **(22)** Recirculation Ballot Summary **(21)**
Interpretation **(14)** BAL-005-1, Requirement 17 - Automatic Generation Control Posted for extended 10-day Ballot Window	PGE Request for Interpretation **(15)** BAL-005-1, Requirement 17	December 19– January 4, 2008 (closed)		Announcement **(18)** Ballot Summary **(17)** Consideration of Ballot Comments **(16)**
Announcement **(12)** BAL-005-1, Requirement 17 - Automatic Generation Control Posted for 30-day Pre-ballot Review Interpretation Clean **(10)** | Redline **(11)** to last posted	PGE Request for Interpretation **(13)** BAL-005-1, Requirement 17	11/19/07– 12/04/07 (closed) 30-day Pre-ballot Review		

Announcement **(5)** Interpretation **(4)** BAL-005-1, Requirement 17 - Automatic Generation Control Posted for 10-day Ballot Window	PGE Request for Interpretation **(6)** BAL-005-1, Requirement 17	10/18/07– 10/29/07 (closed) Ballot Window		Announcement **(9)** Ballot Summary **(8)** Consideration of Ballot Comments **(7)**
Announcement **(2)** Interpretation **(1)** BAL-005-1, Requirement 17 - Automatic Generation Control Posted for 30-day Pre-ballot Review	PGE Request for Interpretation **(3)** BAL-005-1, Requirement 17	09/19/07– 10/18/07 Pre-ballot Review (closed)		

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NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Interpretation of BAL-005-1 Automatic Generation Control, R17

Request for Clarification received from PGE on July 31, 2007

PGE requests clarification regarding the measuring devices for which the requirement applies, specifically clarification if the requirement applies to the following measuring devices:

- *Only equipment within the operations control room*
- *Only equipment that provides values used to calculate AGC ACE*
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Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25% of full scale
Remote terminal unit	≤ 0.25% of full scale
Potential transformer	≤ 0.30% of full scale
Current transformer	≤ 0.50% of full scale

Existing Interpretation Approved by Board of Trustees May 2, 2007

BAL-005-0, Requirement 17 requires that the Balancing Authority check and calibrate its control room time error and frequency devices against a common reference at least annually. The requirement to "annually check and calibrate" does not address any devices outside of the operations control room.

The table represents the design accuracy of the listed devices. There is no requirement within the standard to "annually check and calibrate" the devices listed in the table, unless they are included in the control center time error and frequency devices.

Interpretation provided by NERC Frequency Task Force on September 7, 2007

As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the ACE equation or provide real-time time error or frequency information to the system operator. The time error and frequency measurement devices may not necessarily be located in the operations control room or owned by the BA; however the BA has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

Maureen E. Long
Standards Process Manager

September 19, 2007

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement: Pre-ballot Windows and Ballot Pools Open September 19, 2007

The Standards Committee (SC) announces the following standards action:

Pre-ballot Window and Ballot Pool for Interpretation of CIP-006-1 (for SCE&G) Opens September 19, 2007

South Carolina Electric & Gas Company submitted a Request for an Interpretation of CIP-006-1 — Physical Security of Critical Cyber Assets. The request asked if dial-up remote terminal units (RTUs) that use non-routable protocols and have dial-up access are required to have six-wall perimeters or are only required to have electronic security perimeters.

The Interpretation clarifies that if dial-up assets are classified as critical cyber assets in accordance with CIP-002-1, the assets must reside within an electronic security perimeter; however, physical security control over a critical cyber asset is not required if that asset does not have a routable protocol. Entities are not required to enclose dial-up RTUs that do not use routable protocols within a six-wall border.

A new ballot pool to vote on this interpretation has been formed and will remain open up until 8 a.m. (EDT) on Thursday, October 18, 2007. During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." The list server for this ballot pool is: bp-interp_cip-006_sceg_in@nerc.com

The initial ballot for this interpretation will begin at 8 a.m. (EDT) on Thursday, October 18, 2007.

Pre-ballot Window and Ballot Pool for Interpretation of BAL-005 Requirement R17 (for PGE) Opens September 19, 2007

Portland General Electric Company submitted a Request for an Interpretation of BAL-005-1 — Automatic Generation Control Requirement R17. The request asked if the requirement to annually check and calibrate time error and frequency devices applies to the following measuring devices:

- Only equipment within the operations control room
- Only equipment that provides values used to calculate automatic generation control area control error
- Only equipment that provides values to its SCADA system
- Only equipment owned or operated by the balancing authority
- Only to new or replacement equipment

- To all equipment that a balancing authority owns or operates

The Interpretation clarifies that Requirement R17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the ACE equation or provide real-time time error or frequency information to the system operator. The time error and frequency measurement devices may not necessarily be located in the operations control room or owned by the balancing authority; however, the balancing authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in Requirement 17.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

A new ballot pool to vote on this interpretation has been formed and will remain open up until 8 a.m. (EDT) on Thursday, October 18, 2007. During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." The list server for this ballot pool is: bp-interp_bal-005_pge_in@nerc.com

The initial ballot for this interpretation will begin at 8 a.m. (EDT) on Thursday, October 18, 2007.

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate. If you have any questions, please contact me at 813-468-5998 or maureen.long@nerc.net.

Sincerely,

Maureen E. Long

cc: Registered Ballot Body Registered Users
Standards Mailing List
NERC Roster

Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204

July 31, 2007

Via Electronic Mail and Overnight Delivery

Gerard Adamski
Director of Standards
North American Electric Reliability Corporation
116-390 Village Boulevard
Princeton, New Jersey 08540-5721

Re: Portland General Electric Company
Request for Interpretation of NERC Standard BAL-005-0 R.17

Dear Mr. Adamski:

Portland General Electric Company (PGE) is seeking interpretation of Requirement 17 of North American Electric Reliability Corporation (NERC) Reliability Standard BAL-005-0. This requirement is applicable to PGE in its registered role as a Balancing Authority by FERC Order No. 693.[1] PGE is submitting this request for interpretation under the guidelines set out in "Interpretations of Standards" under the "Special Procedures" section of Version 6.1 of NERC's Reliability Standards Development Procedure.

Requirement 17 of BAL-005-0 reads as follows:

> **R17.** Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25 % of full scale
Remote terminal unit	≤ 0.25 % of full scale
Potential transformer	≤ 0.30 % of full scale
Current transformer	≤ 0.50 % of full scale

[1] Mandatory Reliability Standards for the Bulk-Power System, 118 FERC ¶ 61,218, Issued March 16, 2007.

PGE has reviewed the Request for Clarification of this requirement received by NERC on December 21, 2006. PGE has also reviewed the new version of the Standard, BAL-005-1, which includes the clarification proposed by NERC's Resources Subcommittee and approved by the Board of Trustees on May 2, 2007.[2] This clarification addresses the first sentence of the Requirement, and explains that the phrase "annually check and calibrate" applies only to devices within the operations control room. However, PGE believes that this clarification still leaves several areas of ambiguity regarding this standard, specifically:

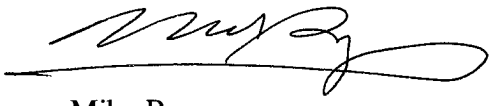
Which equipment is included in the phrase "measuring devices as listed below", in particular, does this phrase apply:

(a) only to equipment within the operations control room?
(b) only to equipment that provides values used to calculate AGC ACE?
(c) only to equipment that provides values to PGE's SCADA system?
(d) only to the equipment owned or operated by the BA?
(e) only to new or replacement equipment?
(f) to all such equipment that a BA owns or operates?

PGE's understanding is that this standard is intended to apply to the BA's new or replacement equipment which provides values used to calculate AGC ACE. Applying this standard more widely – for example, applying it to existing equipment – could cause PGE and other utilities within the region to spend significant amounts of money with little or no actual improvement to system reliability.

Thank you for the opportunity to seek clarification through NERC's interpretation process. If you have any questions regarding this request for interpretation, please do not hesitate to contact me.

Sincerely,



Mike Ryan
Manager, Control Area and Scheduling Operations
Portland General Electric Co.
(503) 464-8793
mike.ryan@pgn.com

[2] Information on Board of Trustees activity is taken from Draft Minutes of the May 2, 2007, Board of Trustees Meeting, posted on NERC's website.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Interpretation of BAL-005-1 Automatic Generation Control, R17

Request for Clarification received from PGE on July 31, 2007

PGE requests clarification regarding the measuring devices for which the requirement applies, specifically clarification if the requirement applies to the following measuring devices:

- *Only equipment within the operations control room*
- *Only equipment that provides values used to calculate AGC ACE*
- *Only equipment that provides values to its SCADA system*
- *Only equipment owned or operated by the BA*
- *Only to new or replacement equipment*
- *To all equipment that a BA owns or operates*

BAL-005-1

R17. Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25% of full scale
Remote terminal unit	≤ 0.25% of full scale
Potential transformer	≤ 0.30% of full scale
Current transformer	≤ 0.50% of full scale

Existing Interpretation Approved by Board of Trustees May 2, 2007

BAL-005-0, Requirement 17 requires that the Balancing Authority check and calibrate its control room time error and frequency devices against a common reference at least annually. The requirement to "annually check and calibrate" does not address any devices outside of the operations control room.

The table represents the design accuracy of the listed devices. There is no requirement within the standard to "annually check and calibrate" the devices listed in the table, unless they are included in the control center time error and frequency devices.

Interpretation provided by NERC Frequency Task Force on September 7, 2007

As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the ACE equation or provide real-time time error or frequency information to the system operator. The time error and frequency measurement devices may not necessarily be located in the operations control room or owned by the BA; however the BA has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Maureen E. Long
Standards Process Manager

October 18, 2007

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement: Initial Ballot Windows, Pre-ballot Review Period, and Ballot Pool Open

The Standards Committee (SC) announces the following standards actions:

Initial Ballot Window for Urgent Action Revisions to BAL-004 is Open

The NERC Operating Committee has submitted an Urgent Action SAR to revise BAL-004-0 — Time Error Correction to remove the following from BAL-004:

- **Requirement 1, second sentence:** A single Reliability Coordinator in each Interconnection shall be designated by the NERC Operating Committee to serve as Interconnection Time Monitor.
  - **Reason for removal:** The entities who have been serving as the Interconnection Time Monitors have done so voluntarily. The NERC Operating Committee is not a user, owner, or operator and has no authority to assign a reliability coordinator to serve as the Interconnection Time Monitor. The entities who have been serving as "volunteers" don't want to continue to serve in this role if they are subject to sanctions for non-compliance with Requirement 2, which supports a business practice.
- **Requirement 2:** The Interconnection Time Monitor shall monitor Time Error and shall initiate or terminate corrective action orders in accordance with the NAESB Time Error Correction Procedure.
  - **Reason for removal:** This requires the reliability coordinator to execute a time error correction in accordance with a NAESB business practice.

The initial ballot for the Urgent Action revisions to BAL-004 is open and will remain open until 8 p.m. on Monday, October 29, 2007.

Initial Ballot Window for Interpretation of CIP-006-1 (for SCE&G) is Open

South Carolina Electric & Gas Company submitted a Request for an Interpretation of CIP-006-1 — Physical Security of Critical Cyber Assets. The request asked if dial-up remote terminal units (RTUs) that use non-routable protocols and have dial-up access are required to have six-wall perimeters or are only required to have electronic security perimeters.

The Interpretation clarifies that if dial-up assets are classified as critical cyber assets in accordance with CIP-002-1, the assets must reside within an electronic security perimeter; however, physical security control over a critical cyber asset is not required if that asset does not have a routable protocol. Entities are not required to enclose dial-up RTUs that do not use routable protocols within a six-wall border.

The initial ballot for the interpretation of CIP-006-1 is open and will remain open until 8 p.m. on Monday, October 29, 2007.

Initial Ballot Window for Interpretation of BAL-005 Requirement R17 (for PGE) is Open

Portland General Electric Company submitted a Request for an Interpretation of BAL-005-1 Automatic Generation Control Requirement R17. The Interpretation asked if the requirement to annually check and calibrate time error and frequency devices applies to the following measuring devices:

- Only equipment within the operations control room
- Only equipment that provides values used to calculate automatic generation control area control error
- Only equipment that provides values to its SCADA system
- Only equipment owned or operated by the balancing authority
- Only to new or replacement equipment
- To all equipment that a balancing authority owns or operates

The Interpretation clarifies that Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the ACE equation or provide real-time time error or frequency information to the system operator. The time error and frequency measurement devices may not necessarily be located in the operations control room or owned by the balancing authority; however, the balancing authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in Requirement 17.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

The initial ballot for this interpretation of BAL-005 Requirement 17 is open and will remain open until 8 p.m. on Monday, October 29, 2007.

Pre-ballot Window and Ballot Pool for PRC-023-1 — Relay Loadability Opens October 18, 2007

A new standard, PRC-023-1 — Relay Loadability, is posted for a 30-day pre-ballot review through 8 a.m. on November 19, 2007.

This standard was developed to address the cascading transmission outages that occurred in the August 2003 blackout when backup distance and phase relays operated on high loading and low voltage without electrical faults on the protected lines. This is the so-called ‘zone 3 relay’ issue that has been expanded to address other protection devices subject to unintended operation during extreme system conditions. The proposed standard establishes minimum loadability criteria for these relays to minimize the chance of unnecessary line trips during a major system disturbance.

The ballot for this standard will also include the Relay Loadability Implementation Plan.

The ballot pool to vote on this standard was formed earlier this year and has been re-opened. Anyone who joined the ballot pool earlier this year and is still a valid member of the Registered Ballot Body will not need to re-join the ballot pool. The ballot pool will remain open until 8 a.m. Monday, November 19, 2007. During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." The list server for this ballot pool is:

bp-Relay Loadability_in@nerc.com

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate. If you have any questions, please contact me at 813-468-5998 or maureen.long@nerc.net.

Sincerely,

Maureen E. Long

cc: Registered Ballot Body Registered Users
Standards Mailing List
NERC Roster

Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204

July 31, 2007

Via Electronic Mail and Overnight Delivery

Gerard Adamski
Director of Standards
North American Electric Reliability Corporation
116-390 Village Boulevard
Princeton, New Jersey 08540-5721

Re: Portland General Electric Company
Request for Interpretation of NERC Standard BAL-005-0 R.17

Dear Mr. Adamski:

Portland General Electric Company (PGE) is seeking interpretation of Requirement 17 of North American Electric Reliability Corporation (NERC) Reliability Standard BAL-005-0. This requirement is applicable to PGE in its registered role as a Balancing Authority by FERC Order No. 693.[1] PGE is submitting this request for interpretation under the guidelines set out in "Interpretations of Standards" under the "Special Procedures" section of Version 6.1 of NERC's Reliability Standards Development Procedure.

Requirement 17 of BAL-005-0 reads as follows:

> **R17.** Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25 % of full scale
Remote terminal unit	≤ 0.25 % of full scale
Potential transformer	≤ 0.30 % of full scale
Current transformer	≤ 0.50 % of full scale

[1] Mandatory Reliability Standards for the Bulk-Power System, 118 FERC ¶ 61,218, Issued March 16, 2007.

PGE has reviewed the Request for Clarification of this requirement received by NERC on December 21, 2006. PGE has also reviewed the new version of the Standard, BAL-005-1, which includes the clarification proposed by NERC's Resources Subcommittee and approved by the Board of Trustees on May 2, 2007.[2] This clarification addresses the first sentence of the Requirement, and explains that the phrase "annually check and calibrate" applies only to devices within the operations control room. However, PGE believes that this clarification still leaves several areas of ambiguity regarding this standard, specifically:

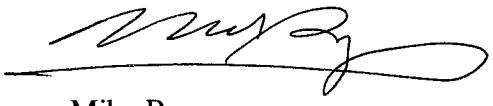
Which equipment is included in the phrase "measuring devices as listed below", in particular, does this phrase apply:

(a) only to equipment within the operations control room?
(b) only to equipment that provides values used to calculate AGC ACE?
(c) only to equipment that provides values to PGE's SCADA system?
(d) only to the equipment owned or operated by the BA?
(e) only to new or replacement equipment?
(f) to all such equipment that a BA owns or operates?

PGE's understanding is that this standard is intended to apply to the BA's new or replacement equipment which provides values used to calculate AGC ACE. Applying this standard more widely – for example, applying it to existing equipment – could cause PGE and other utilities within the region to spend significant amounts of money with little or no actual improvement to system reliability.

Thank you for the opportunity to seek clarification through NERC's interpretation process. If you have any questions regarding this request for interpretation, please do not hesitate to contact me.

Sincerely,



Mike Ryan
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[2] Information on Board of Trustees activity is taken from Draft Minutes of the May 2, 2007, Board of Trustees Meeting, posted on NERC's website.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments on Initial Ballot for Interpretation of BAL-005-1 — Automatic Generation Control Requirement 17 for Portland General Electric

Summary Consideration: Based on the comments submitted with initial ballots for the interpretation of BAL-005-1 Requirement 17, the drafting team (Frequency Task Force) has modified the interpretation as shown below:

> As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the reporting or compliance ACE equation or provide real-time time error or frequency information to the system operator. Frequency inputs from other sources that are for reference only are excluded. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the Balancing Authority; however, the Balancing Authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17. The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.
>
> New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

Because the interpretation was modified, the drafting team is posting the revised interpretation for another 30-day review period before conducting another initial ballot.

Organization:	**Ameren Services Company**
Member:	Kirit S. Shah
Comment:	While we know the intent of the requirement is for the devices that provide input to the ACE equation or to the frequency chart displayed to the system operator. However, the standard/interpretation is still ambiguous. The phrase "frequency information to the system operator" may include lots of frequency sensors in plants and substations that provide referential input only. We recommend the requirement language to state the intent very clearly.
Response:	The Frequency Task Force added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only.
Organization:	**Avista Corp.**
Member:	Scott Kinney
Comment:	Avista votes against the new interpretation of BAL-005-1 for the following reasons. The title and purpose of BAL-005 refers specifically to "Automatic Generation Control"

	and the initial interpretation of BAL-005 focused the scope onto only the control center equipment. This new interpretation contradicts the Title, the Purpose, and the previous interpretation and extends the scope of BAL-005, R17 far beyond AGC input equipment. The interpretation extends R17 to include any equipment which "provide(s) real-time time error or frequency information to the system operator." New substation equipment and technology, such as meters and relays, provide built-in frequency measurement capabilities. In these new substation installations utilities can telemetering substation frequency measurements and present them to system operators by means of SCADA displays. The intention is to improve the system operator's situational awareness in the event of a system breakup, islanding, or blackout recovery. These values are not inputs to AGC. Frequency measurements are also received from neighboring BAs to provide additional situational awareness and are not inputs to AGC. The affect of this interpretation will likely cause the removal of existing situational awareness frequency telemetry points to avoid the yearly calibration requirement for this remote and foreign owned equipment. This defeats the purpose of providing the operators additional system information to help understand the condition of the system. Avista believes that the interpretation should be modified as follows. "As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the ACE equation or provide real-time time error or frequency information to the system operator." This yields an interpretation which promotes the validity of the ACE calculation, through calibration of the inputs, without expanding the scope of the standard to non-AGC measurements that only provide additional information to system operators.
Response:	The Frequency Task Force does not agree that the scope of the standard changes with this interpretation and has added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only.
Organization:	**Hydro-Quebec TransEnergie**
Member:	Julien Gagnon
Comment:	Even with this interpretation, it is not clear and measurable.
Response:	The Frequency Task Force added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only.
Organization:	**New Brunswick Power Transmission Corporation**
Member:	Wayne N. Snowdon
Comment:	The interpretation was confusing and the clarification seems to make the standard even vaguer. Further work needs to be done on the interpretation to make it crisp

	clear and measurable.
Response:	The Frequency Task Force added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only.
Organization:	**SaskPower**
Member:	Wayne Guttormson
Comment:	The following are the comments of SaskPower and the Saskatchewan Regulatory Jurisdiction. The design accuracy requirements for R17 should only apply to new equipment. Unless NERC can demonstrate a serious reliability impact from existing equipment not meeting these specific accuracy requirements that can not be mitigated in some other fashion if need be. The Saskatchewan Regulatory Jurisdiction reminds NERC that it does not have the authority to mandate the addition or replacement of transmission facilities, including the ones listed in R17. We also note that the new interpretation seems to go beyond the original approved interpretation and expands the scope to devices outside of the operations control room.
Response:	R17 is applicable to all frequency meters used as inputs to the ACE equation. This is not a change from the approved BAL-005-1. The Frequency Task Force added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only.
Organization:	**Alberta Electric System Operator**
Member:	Anita Lee
Comment:	The new proposed interpretation seems to contradict the last approved interpretation: The last approved interpretation states: "The requirement to "annually check and calibrate" does not address any devices outside of the operations control room". The new proposed interpretation states: "The time error and frequency measurement devices may not necessarily be located in the operations control room or owned by the BA; however the BA has the responsibility for the accuracy of the frequency and time error measurement devices." It is not appropriate for the BA to be responsible for devices that are owned and/or operated by some other functional entity.
Response:	The Frequency Task Force disagrees. The BA is responsible for the accuracy of all frequency inputs to the ACE equation regardless of ownership. The Frequency Task Force added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only

	and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only.
Organization:	**Avista Corp.**
Member:	Edward F. Groce
Comment:	Avista votes against the new interpretation of BAL-005-1 for the following reasons. The title and purpose of BAL-005 refers specifically to "Automatic Generation Control" and the initial interpretation of BAL-005 focused the scope onto only the control center equipment. This new interpretation contradicts the Title, the Purpose, and the previous interpretation and extends the scope of BAL-005, R17 far beyond AGC input equipment. The interpretation extends R17 to include any equipment which "provide(s) real-time time error or frequency information to the system operator." New substation equipment and technology, such as meters and relays, provide built-in frequency measurement capabilities. In these new substation installations utilities can telemeter substation frequency measurements and present them to system operators by means of SCADA displays. The intention is to improve the system operator's situational awareness in the event of a system breakup, islanding, or blackout recovery. These values are not inputs to AGC. Frequency measurements are also received from neighboring BAs to provide additional situational awareness and are not inputs to AGC. The affect of this interpretation will likely cause the removal of existing situational awareness frequency telemetry points to avoid the yearly calibration requirement for this remote and foreign owned equipment. This defeats the purpose of providing the operators additional system information to help understand the condition of the system. Avista believes that the interpretation should be modified as follows. "BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the ACE equation." This yields an interpretation which promotes the validity of the ACE calculation, through calibration of the inputs, without expanding the scope of the standard to non-AGC measurements that only provide additional information to system operators.
Response:	The Frequency Task Force does not agree that the scope of the standard changes with this interpretation and added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only.
Organization:	**Entergy Services, Inc.**
Member:	William Franklin
Comment:	It is not clear what happens to the previous interpretation for this Requirement. The proposed interpretation conflicts with the existing interpretation. Specifically, the existing requirement states that "the requirement to annually check and calibrate does not address any devices outside of the operations control room" but the new interpretation states that "The time error and frequency measurement devices may not necessarily be located in the operations control room..." The implementation plan of the proposed interpretation should also supersede the current interpretation. Additionally, if the intent of the Requirement is to ensure that the entire frequency monitoring circuit is calibrated then state as such (from point of sensing to display).

Response:	R17 only addresses frequency and time error devices that provide input to the ACE equation. The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements. At the time the requirement and first interpretation were prepared, the phrase "in the operations control room" was intended to include the frequency inputs used in the ACE equation. This language has proven to be ambiguous and should have focused on the frequency devices that provide input to the ACE equation, not the physical location of the devices within the BA area. The Frequency Task Force added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only. The interpretation effort is to clarify the requirement. An Implementation Plan does not exist for the interpretation
Organization:	**Commonwealth of Massachusetts Department of Public Utilities**
Member:	Donald E. Nelson
Comment:	The interpretation was confusing to the members and the clarification seems to have made the standard even vaguer. Further work needs to be done on the interpretation to make it crisp, clear and measurable.
Response:	The Frequency Task Force added the following clarifying statements to the interpretation: • "Frequency inputs from other sources that are for reference only are excluded." • "The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements." With the clarifying statements that have been added to the interpretation, the scope is limited to input to the ACE equation only.
Organization:	**SERC Reliability Corporation**
Member:	Gerry W. Cauley
Comment:	The interpretation, while correct, appears to dodge the principal question by the requester. That is whether the calibration requirement applies to only new/replacement equipment. The answer is clearly no, it applies to existing and new/replacement equipment. The prior operating policy from which this requirement was translated never intended to limit the obligation to only new equipment.
Response:	The Frequency Task Force agrees, as captured in the last paragraph of this interpretation: "New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy."

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Ballot Results	
Ballot Name:	Interpretation Request - BAL-005 - PGE_in
Ballot Period:	10/18/2007 - 10/29/2007
Ballot Type:	Initial
Total # Votes:	137
Total Ballot Pool:	142
Quorum:	**96.48 % The Quorum has been reached**
Weighted Segment Vote:	85.91 %
Ballot Results:	**The standard will proceed to recirculation ballot.**

Summary of Ballot Results

Segment	Ballot Pool	Segment Weight	Affirmative # Votes	Affirmative Fraction	Negative # Votes	Negative Fraction	Abstain # Votes	No Vote
1 - Segment 1.	41	1	30	0.811	7	0.189	4	0
2 - Segment 2.	7	0.7	6	0.6	1	0.1	0	0
3 - Segment 3.	33	1	29	0.935	2	0.065	2	0
4 - Segment 4.	8	0.8	8	0.8	0	0	0	0
5 - Segment 5.	20	1	17	0.944	1	0.056	0	2
6 - Segment 6.	17	1	15	0.938	1	0.063	0	1
7 - Segment 7.	1	0.1	1	0.1	0	0	0	0
8 - Segment 8.	2	0.2	2	0.2	0	0	0	0
9 - Segment 9.	5	0.4	1	0.1	3	0.3	0	1
10 - Segment 10.	8	0.7	5	0.5	2	0.2	0	1
Totals	**142**	**6.9**	**114**	**5.928**	**17**	**0.973**	**6**	**5**

Individual Ballot Pool Results

Segment	Organization	Member	Ballot	Comments
1	Ameren Services Company	Kirit S. Shah	Negative	View
1	American Public Power Association	E. Nick Henery	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Affirmative	
1	Arizona Public Service Co.	Cary B. Deise	Affirmative	
1	Avista Corp.	Scott Kinney	Negative	View
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	
1	Duke Energy Carolina	Doug Hils	Affirmative	
1	Entergy Corporation	George R. Bartlett	Affirmative	
1	FirstEnergy Energy Delivery	Robert Martinko	Affirmative	
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton	Affirmative	

1	Great River Energy	Gordon Pietsch	Affirmative	
1	Hydro One Networks, Inc.	Ajay Garg	Negative	
1	Hydro-Quebec TransEnergie	Julien Gagnon	Negative	View
1	JEA	Ted E. Hobson	Affirmative	
1	Kansas City Power & Light Co.	Jim Useldinger	Affirmative	
1	Lincoln Electric System	Doug Bantam	Affirmative	
1	Manitoba Hydro	Robert G. Coish	Affirmative	
1	Minnesota Power, Inc.	Carol Gerou	Affirmative	
1	Nebraska Public Power District	Richard L. Koch	Affirmative	
1	New Brunswick Power Transmission Corporation	Wayne N. Snowdon	Negative	View
1	New York Power Authority	Ralph Rufrano	Negative	
1	Northeast Utilities	David H. Boguslawski	Abstain	
1	Northern Indiana Public Service Co.	Joseph Dobes	Abstain	
1	Oncor Electric Delivery	Charles W. Jenkins	Affirmative	
1	Otter Tail Power Company	Lawrence R. Larson	Affirmative	
1	PacifiCorp	Robert Williams	Affirmative	
1	Portland General Electric Co.	Frank F. Afranji	Affirmative	
1	Potomac Electric Power Co.	Richard J. Kafka	Affirmative	
1	PP&L, Inc.	Ray Mammarella	Affirmative	
1	Progress Energy Carolinas	Sammy Roberts	Affirmative	
1	Sacramento Municipal Utility District	Dilip Mahendra	Affirmative	
1	Salt River Project	Robert Kondziolka	Affirmative	
1	San Diego Gas & Electric	Linda Brown	Abstain	
1	Santee Cooper	Terry L. Blackwell	Affirmative	
1	SaskPower	Wayne Guttormson	Negative	View
1	Seattle City Light	Christopher M. Turner	Affirmative	
1	Sierra Pacific Power Co.	Richard Salgo	Affirmative	
1	Southern Company Services, Inc.	Horace Stephen Williamson	Affirmative	
1	Tri-State G & T Association Inc.	Bruce A Sembrick	Affirmative	
1	Tucson Electric Power Co.	Ronald P. Belval	Abstain	
1	Westar Energy	Allen Klassen	Affirmative	
2	Alberta Electric System Operator	Anita Lee	Negative	View
2	California ISO	David Hawkins	Affirmative	
2	Independent Electricity System Operator	Don Tench	Affirmative	
2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Affirmative	
2	New York Independent System Operator	Gregory Campoli	Affirmative	
2	PJM Interconnection, L.L.C.	Tom Bowe	Affirmative	
3	Alabama Power Company	Robin Hurst	Affirmative	
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	Bonneville Power Administration	Rebecca Berdahl	Affirmative	
3	City of Tallahassee	Rusty S. Foster	Negative	
3	Consumers Energy Co.	David A. Lapinski	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Abstain	
3	Entergy Services, Inc.	Matt Wolf	Affirmative	
3	Farmington Electric Utility System	Alan Glazner	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Affirmative	
3	Florida Municipal Power Agency	Michael Alexander	Affirmative	
3	Florida Power Corporation	Lee Schuster	Abstain	
3	Georgia Power Company	Leslie Sibert	Affirmative	
3	Great River Energy	Sam Kokkinen	Affirmative	

3	Hydro One Networks, Inc.	Michael D. Penstone	Negative	
3	JEA	Garry Baker	Affirmative	
3	Lincoln Electric System	Bruce Merrill	Affirmative	
3	Manitoba Hydro	Ronald Dacombe	Affirmative	
3	Mississippi Power	Don Horsley	Affirmative	
3	Northern Indiana Public Service Co.	William SeDoris	Affirmative	
3	Orlando Utilities Commission	Ballard Keith Mutters	Affirmative	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Portland General Electric Co.	Jerry Thale	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Affirmative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Utility District No. 2 of Grant County	Greg Lange	Affirmative	
3	Salt River Project	John T. Underhill	Affirmative	
3	Santee Cooper	Zack Dusenbury	Affirmative	
3	Seattle City Light	Dana Wheelock	Affirmative	
3	Tennessee Valley Authority	Cynthia Herron	Affirmative	
3	Wisconsin Electric Power Marketing	James R. Keller	Affirmative	
3	Xcel Energy, Inc.	Michael Ibold	Affirmative	
4	American Municipal Power - Ohio	Chris Norton	Affirmative	
4	Consumers Energy Co.	David Frank Ronk	Affirmative	
4	Florida Municipal Power Agency	William S. May	Affirmative	
4	Northern California Power Agency	Fred E. Young	Affirmative	
4	Old Dominion Electric Coop.	Mark Ringhausen	Affirmative	
4	Public Utility District No. 2 of Grant County	Kevin J. Conway	Affirmative	
4	Seattle City Light	Hao Li	Affirmative	
4	Wisconsin Energy Corp.	Anthony Jankowski	Affirmative	
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Avista Corp.	Edward F. Groce	Negative	View
5	BC Hydro and Power Authority	Clement Ma		
5	Black Hills Power	Pamela Pahl	Affirmative	
5	Bonneville Power Administration	Francis J. Halpin	Affirmative	
5	Conectiv Energy Supply, Inc.	Richard K. Douglass	Affirmative	
5	FirstEnergy Solutions	Kenneth Dresner	Affirmative	
5	Florida Municipal Power Agency	Douglas Keegan	Affirmative	
5	Great River Energy	Cynthia E Sulzer	Affirmative	
5	Lincoln Electric System	Dennis Florom	Affirmative	
5	Manitoba Hydro	Mark Aikens	Affirmative	
5	Portland General Electric Co.	Gary L. Tingley	Affirmative	
5	PPL Generation LLC	Mark A. Heimbach	Affirmative	
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Southern Company Services, Inc.	Roger D. Green	Affirmative	
5	TXU Generation Company LP	Rickey Terrill		
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan	Affirmative	
5	Wisconsin Electric Power Co.	Linda Horn	Affirmative	
5	Xcel Energy, Inc.	Stephen J. Beuning	Affirmative	
6	AEP Service Corp.	Dana E. Horton	Affirmative	
6	Black Hills Power	Larry Williamson	Affirmative	
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	
6	Entergy Services, Inc.	William Franklin	Negative	View
6	First Energy Solutions	Alfred G. Roth	Affirmative	
6	Florida Municipal Power Agency	Robert C. Williams		
6	Lincoln Electric System	Eric Ruskamp	Affirmative	
6	Luminant Energy	Thomas Burke	Affirmative	
6	Manitoba Hydro	Daniel Prowse	Affirmative	

6	Portland General Electric Co.	John Jamieson	Affirmative	
6	Progress Energy Carolinas	James Eckelkamp	Affirmative	
6	Sacramento Municipal Utility District	Robert D. Schwermann	Affirmative	
6	Santee Cooper	Suzanne Ritter	Affirmative	
6	Seminole Electric Cooperative, Inc.	Trudy S. Novak	Affirmative	
6	South Carolina Electric & Gas Co.	John E Folsom, Jr.	Affirmative	
6	Southern Company Generation and Energy Marketing	J. Roman Carter	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	
7	Eastman Chemical Company	Lloyd Webb	Affirmative	
8	Energy Mark, Inc.	Howard F. Illian	Affirmative	
8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
9	California Energy Commission	William Mitchell Chamberlain	Affirmative	
9	California Public Utilities Commission	Laurence Chaset		
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Negative	View
9	National Association of Regulatory Utility Commissioners	Diane J. Barney	Negative	
9	New York State Public Service Commission	James T. Gallagher	Negative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Affirmative	
10	Florida Reliability Coordinating Council	Linda Campbell	Affirmative	
10	Midwest Reliability Organization	Larry Brusseau		
10	New York State Reliability Council	Alan Adamson	Negative	
10	Northeast Power Coordinating Council, Inc.	Edward A. Schwerdt	Negative	
10	SERC Reliability Corporation	Gerry W. Cauley	Affirmative	View
10	Southwest Power Pool	Charles H. Yeung	Affirmative	
10	Western Electricity Coordinating Council	Louise McCarren	Affirmative	

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116-390 Village Boulevard, Princeton, New Jersey 08540-5721

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Maureen E. Long
Standards Process Manager

October 31, 2007

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement of Initial Ballot Results for Three Ballots

The Standards Committee (SC) announces the following:

Initial Ballot Results for Urgent Action Revisions to BAL-004-0

The initial ballot for the Urgent Action Revisions to BAL-004-0 — Time Error Correction was conducted from October 18 through October 29, 2007. The proposed revision removes the following from BAL-004:

- **Requirement 1, second sentence:** A single Reliability Coordinator in each Interconnection shall be designated by the NERC Operating Committee to serve as Interconnection Time Monitor.
  - **Reason for removal:** The entities who have been serving as the Interconnection Time Monitors have done so voluntarily. The NERC Operating is not a user, owner, or operator and has n authority to assign a reliability coordinator to serve as the Interconnection Time Monitor. The entities who have been serving as 'volunteers' don't want to continue to serve in this role if they are subject to sanctions for non-compliance with Requirement 2, which supports a business practice.
- **Requirement 2:** The Interconnection Time Monitor shall monitor Time Error and shall initiate or terminate corrective action orders in accordance with the NAESB Time Error Correction Procedure.
  - **Reason for removal:** This requires the reliability coordinator to execute a time error correction in accordance with a NAESB business practice.

The ballot achieved a quorum; however, there were some negative ballots with comments, initiating the need to undergo a re-circulation ballot. The drafting team will be reviewing comments submitted with the ballot and preparing its consideration of those comments. (Detailed Ballot Results)

Quorum:	96.18 %
Approval:	93.93 %

Initial Ballot Results for Interpretation of CIP-006-1 (for SCE&G)

The initial ballot for the Interpretation of CIP-006-1 — Physical Security of Critical Cyber Assets was conducted from October 18 through October 29, 2007. The request for an interpretation asked if dial-up remote terminal units (RTUs) that use non-routable protocols and have dial-up access are required to have six-wall perimeters or are only required to have electronic security perimeters.

The Interpretation clarifies that if dial-up assets are classified as critical cyber assets in accordance with CIP-002-1, the assets must reside within an electronic security perimeter, however, physical security

control over a critical cyber asset is not required if that asset does not have a routable protocol. Entities are not required to enclose dial-up RTUs that do not use routable protocols within a six-wall border.

The ballot achieved a quorum; however, there were some negative ballots with comments, initiating the need to undergo a re-circulation ballot. The drafting team will be reviewing comments submitted with the ballot and preparing its consideration of those comments. (Detailed Ballot Results)

Quorum: 97.37%
Approval: 92.24%

Initial Ballot Results for Interpretation of BAL-005 Requirement R17 (for PGE)

The initial ballot for the Interpretation of BAL-005-1 — Automatic Generation Control Requirement R17 was conducted from October 18 through October 29, 2007. The request for an interpretation asked if the requirement to annually check and calibrate time error and frequency devices applies to the following measuring devices:

- Only equipment within the operations control room
- Only equipment that provides values used to calculate automatic generation control area control error
- Only equipment that provides values to its SCADA system
- Only equipment owned or operated by the balancing authority
- Only to new or replacement equipment
- To all equipment that a balancing authority owns or operates

The Interpretation clarifies that Requirement R17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the ACE equation or provide real-time time error or frequency information to the system operator. The time error and frequency measurement devices may not necessarily be located in the operations control room or owned by the balancing authority; however, the balancing authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in Requirement 17.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

The ballot achieved a quorum however there were some negative ballots with comments, initiating the need to undergo a re-circulation ballot. The drafting team will be reviewing comments submitted with the ballot and preparing its consideration of those comments. (Detailed Ballot Results)

Quorum: 96.48%
Approval: 85.91%

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate. If you have any questions, please contact me at 813-468-5998 or maureen.long@nerc.net.

Sincerely,

Maureen E. Long

cc: Registered Ballot Body Registered Users
Standards Mailing List
NERC Roster

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Interpretation of BAL-005-1 Automatic Generation Control, R17

Request for Clarification received from PGE on July 31, 2007

PGE requests clarification regarding the measuring devices for which the requirement applies, specifically clarification if the requirement applies to the following measuring devices:

- *Only equipment within the operations control room*
- *Only equipment that provides values used to calculate AGC ACE*
- *Only equipment that provides values to its SCADA system*
- *Only equipment owned or operated by the BA*
- *Only to new or replacement equipment*
- *To all equipment that a BA owns or operates*

BAL-005-1

R17. Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25% of full scale
Remote terminal unit	≤ 0.25% of full scale
Potential transformer	≤ 0.30% of full scale
Current transformer	≤ 0.50% of full scale

Existing Interpretation Approved by Board of Trustees May 2, 2007

BAL-005-0, Requirement 17 requires that the Balancing Authority check and calibrate its control room time error and frequency devices against a common reference at least annually. The requirement to "annually check and calibrate" does not address any devices outside of the operations control room.

The table represents the design accuracy of the listed devices. There is no requirement within the standard to "annually check and calibrate" the devices listed in the table, unless they are included in the control center time error and frequency devices.

Interpretation provided by NERC Frequency Task Force on September 7, 2007 and Revised on November 16, 2007

As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the reporting or compliance ACE equation or provide real-time time error or frequency information to the system operator. Frequency inputs from other sources that are for reference only are excluded. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the Balancing Authority; however the Balancing Authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17.

The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Interpretation of BAL-005-1 Automatic Generation Control, R17

Request for Clarification received from PGE on July 31, 2007

PGE requests clarification regarding the measuring devices for which the requirement applies, specifically clarification if the requirement applies to the following measuring devices:

- *Only equipment within the operations control room*
- *Only equipment that provides values used to calculate AGC ACE*
- *Only equipment that provides values to its SCADA system*
- *Only equipment owned or operated by the BA*
- *Only to new or replacement equipment*
- *To all equipment that a BA owns or operates*

BAL-005-1

R17. Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25% of full scale
Remote terminal unit	≤ 0.25% of full scale
Potential transformer	≤ 0.30% of full scale
Current transformer	≤ 0.50% of full scale

Existing Interpretation Approved by Board of Trustees May 2, 2007

BAL-005-0, Requirement 17 requires that the Balancing Authority check and calibrate its control room time error and frequency devices against a common reference at least annually. The requirement to "annually check and calibrate" does not address any devices outside of the operations control room.

The table represents the design accuracy of the listed devices. There is no requirement within the standard to "annually check and calibrate" the devices listed in the table, unless they are included in the control center time error and frequency devices.

Interpretation provided by NERC Frequency Task Force on September 7, 2007 and Revised on November 16, 2007

As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the reporting or compliance ACE equation or provide real-time time error or frequency information to the system operator. Frequency inputs from other sources that are for reference only are excluded. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the Balancing Authority; however the Balancing Authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17. The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such.

In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

Maureen E. Long
Standards Process Manager

November 19, 2007

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement:
Initial Ballot Window, Pre-ballot Review Period and Ballot Pool Open

The Standards Committee (SC) announces the following standards actions:

Initial Ballot Window for PRC-023 — Relay Loadability is Open

The initial ballot for the PRC-023-1 — Relay Loadability is open and will remain open until 8 p.m. Tuesday, December 4, 2007.

This standard was developed to address the cascading transmission outages that occurred in the August 2003 blackout when backup distance and phase relays operated on high loading and low voltage without electrical faults on the protected lines. This is the so-called 'zone 3 relay' issue, which has been expanded to address other protection devices subject to unintended operation during extreme system conditions. The proposed standard establishes minimum loadability criteria for these relays to minimize the chance of unnecessary line trips during a major system disturbance.

The ballot for this standard also includes the Relay Loadability Implementation Plan.

Pre-ballot Window for Revised Interpretation of BAL-005 Requirement R17 (for PGE) is Open

Portland General Electric Company submitted a Request for an Interpretation of BAL-005-1 Automatic Generation Control Requirement R17. The Interpretation asked if the requirement to annually check and calibrate time error and frequency devices applies to the following measuring devices:

- Only equipment within the operations control room
- Only equipment that provides values used to calculate automatic generation control area control error
- Only equipment that provides values to its SCADA system
- Only equipment owned or operated by the balancing authority
- Only to new or replacement equipment
- To all equipment that a balancing authority owns or operates

The Frequency Task Force (drafting team) provided an interpretation that underwent an initial ballot from October 18 through October 29, 2007. Some comments submitted with ballots indicated that the clarification seemed to expand the scope of the associated requirement and the drafting team added some clarifying language to the interpretation. The drafting team is re-posting the revised interpretation for a **new** 30-day pre-ballot review.

The revised interpretation clarifies that Requirement R17 applies only to the time error and frequency devices that provide, or in the case of backup equipment may provide, input into the ACE equation or provide real-time time error or frequency information to the system operator. The requirement does not apply to frequency inputs from other sources that are for reference only. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the balancing authority; however the balancing authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in Requirement 17 — the other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

The ballot pool to vote on this interpretation has been re-opened and will remain open up until 8 a.m. (EST) Wednesday, December 19, 2007. During the pre-ballot window, members of the ballot pool may communicate with one another by using their "ballot pool list server." The list server for this ballot pool is: bp-interp_bal-005_pge_in@nerc.com

The initial ballot for this interpretation will begin at 8 a.m. (EDT) on Wednesday, December 19, 2007.

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate. If you have any questions, please contact me at 813-468-5998 or maureen.long@nerc.net.

Sincerely,

Maureen E. Long

cc: Registered Ballot Body Registered Users
Standards Mailing List
NERC Roster

Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204

July 31, 2007

Via Electronic Mail and Overnight Delivery

Gerard Adamski
Director of Standards
North American Electric Reliability Corporation
116-390 Village Boulevard
Princeton, New Jersey 08540-5721

Re: Portland General Electric Company
Request for Interpretation of NERC Standard BAL-005-0 R.17

Dear Mr. Adamski:

Portland General Electric Company (PGE) is seeking interpretation of Requirement 17 of North American Electric Reliability Corporation (NERC) Reliability Standard BAL-005-0. This requirement is applicable to PGE in its registered role as a Balancing Authority by FERC Order No. 693.[1] PGE is submitting this request for interpretation under the guidelines set out in "Interpretations of Standards" under the "Special Procedures" section of Version 6.1 of NERC's Reliability Standards Development Procedure.

Requirement 17 of BAL-005-0 reads as follows:

> **R17.** Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25 % of full scale
Remote terminal unit	≤ 0.25 % of full scale
Potential transformer	≤ 0.30 % of full scale
Current transformer	≤ 0.50 % of full scale

[1] Mandatory Reliability Standards for the Bulk-Power System, 118 FERC ¶ 61,218, Issued March 16, 2007.

PGE has reviewed the Request for Clarification of this requirement received by NERC on December 21, 2006. PGE has also reviewed the new version of the Standard, BAL-005-1, which includes the clarification proposed by NERC's Resources Subcommittee and approved by the Board of Trustees on May 2, 2007.[2] This clarification addresses the first sentence of the Requirement, and explains that the phrase "annually check and calibrate" applies only to devices within the operations control room. However, PGE believes that this clarification still leaves several areas of ambiguity regarding this standard, specifically:

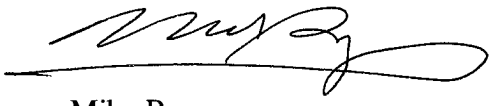
Which equipment is included in the phrase "measuring devices as listed below", in particular, does this phrase apply:

(a) only to equipment within the operations control room?
(b) only to equipment that provides values used to calculate AGC ACE?
(c) only to equipment that provides values to PGE's SCADA system?
(d) only to the equipment owned or operated by the BA?
(e) only to new or replacement equipment?
(f) to all such equipment that a BA owns or operates?

PGE's understanding is that this standard is intended to apply to the BA's new or replacement equipment which provides values used to calculate AGC ACE. Applying this standard more widely – for example, applying it to existing equipment – could cause PGE and other utilities within the region to spend significant amounts of money with little or no actual improvement to system reliability.

Thank you for the opportunity to seek clarification through NERC's interpretation process. If you have any questions regarding this request for interpretation, please do not hesitate to contact me.

Sincerely,



Mike Ryan
Manager, Control Area and Scheduling Operations
Portland General Electric Co.
(503) 464-8793
mike.ryan@pgn.com

[2] Information on Board of Trustees activity is taken from Draft Minutes of the May 2, 2007, Board of Trustees Meeting, posted on NERC's website.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Interpretation of BAL-005-1 Automatic Generation Control, R17

Request for Clarification received from PGE on July 31, 2007

PGE requests clarification regarding the measuring devices for which the requirement applies, specifically clarification if the requirement applies to the following measuring devices:

- *Only equipment within the operations control room*
- *Only equipment that provides values used to calculate AGC ACE*
- *Only equipment that provides values to its SCADA system*
- *Only equipment owned or operated by the BA*
- *Only to new or replacement equipment*
- *To all equipment that a BA owns or operates*

BAL-005-1

R17. Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25% of full scale
Remote terminal unit	≤ 0.25% of full scale
Potential transformer	≤ 0.30% of full scale
Current transformer	≤ 0.50% of full scale

Existing Interpretation Approved by Board of Trustees May 2, 2007

BAL-005-0, Requirement 17 requires that the Balancing Authority check and calibrate its control room time error and frequency devices against a common reference at least annually. The requirement to "annually check and calibrate" does not address any devices outside of the operations control room.

The table represents the design accuracy of the listed devices. There is no requirement within the standard to "annually check and calibrate" the devices listed in the table, unless they are included in the control center time error and frequency devices.

Interpretation provided by NERC Frequency Task Force on September 7, 2007 and Revised on November 16, 2007

As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the reporting or compliance ACE equation or provide real-time time error or frequency information to the system operator. Frequency inputs from other sources that are for reference only are excluded. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the Balancing Authority; however the Balancing Authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17.

The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204

July 31, 2007

Via Electronic Mail and Overnight Delivery

Gerard Adamski
Director of Standards
North American Electric Reliability Corporation
116-390 Village Boulevard
Princeton, New Jersey 08540-5721

Re: Portland General Electric Company
Request for Interpretation of NERC Standard BAL-005-0 R.17

Dear Mr. Adamski:

Portland General Electric Company (PGE) is seeking interpretation of Requirement 17 of North American Electric Reliability Corporation (NERC) Reliability Standard BAL-005-0. This requirement is applicable to PGE in its registered role as a Balancing Authority by FERC Order No. 693.[1] PGE is submitting this request for interpretation under the guidelines set out in "Interpretations of Standards" under the "Special Procedures" section of Version 6.1 of NERC's Reliability Standards Development Procedure.

Requirement 17 of BAL-005-0 reads as follows:

> **R17.** Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25 % of full scale
Remote terminal unit	≤ 0.25 % of full scale
Potential transformer	≤ 0.30 % of full scale
Current transformer	≤ 0.50 % of full scale

[1] Mandatory Reliability Standards for the Bulk-Power System, 118 FERC ¶ 61,218, Issued March 16, 2007.

PGE has reviewed the Request for Clarification of this requirement received by NERC on December 21, 2006. PGE has also reviewed the new version of the Standard, BAL-005-1, which includes the clarification proposed by NERC's Resources Subcommittee and approved by the Board of Trustees on May 2, 2007.[2] This clarification addresses the first sentence of the Requirement, and explains that the phrase "annually check and calibrate" applies only to devices within the operations control room. However, PGE believes that this clarification still leaves several areas of ambiguity regarding this standard, specifically:

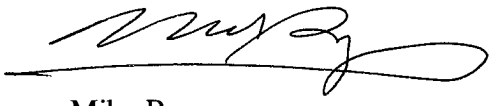
Which equipment is included in the phrase "measuring devices as listed below", in particular, does this phrase apply:

(a) only to equipment within the operations control room?
(b) only to equipment that provides values used to calculate AGC ACE?
(c) only to equipment that provides values to PGE's SCADA system?
(d) only to the equipment owned or operated by the BA?
(e) only to new or replacement equipment?
(f) to all such equipment that a BA owns or operates?

PGE's understanding is that this standard is intended to apply to the BA's new or replacement equipment which provides values used to calculate AGC ACE. Applying this standard more widely – for example, applying it to existing equipment – could cause PGE and other utilities within the region to spend significant amounts of money with little or no actual improvement to system reliability.

Thank you for the opportunity to seek clarification through NERC's interpretation process. If you have any questions regarding this request for interpretation, please do not hesitate to contact me.

Sincerely,



Mike Ryan
Manager, Control Area and Scheduling Operations
Portland General Electric Co.
(503) 464-8793
mike.ryan@pgn.com

[2] Information on Board of Trustees activity is taken from Draft Minutes of the May 2, 2007, Board of Trustees Meeting, posted on NERC's website.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments on Initial Ballot of Interpretation of Requirement R17 in BAL-005-1 — Automatic Generation Control for Portland General Electric

Summary Consideration: The drafting team did not make any modifications to the interpretation based on stakeholder comments. Two of the commenters suggest that the interpretation appears to conflict with the previous interpretation. The previous interpretation addressed the same question, and should be retired at the same time the BOT adopts the new interpretation. NERC staff will submit a request to retire the interpretation of BAL-005-1 R17 that was adopted by the NERC BOT on May 2, 2007 when this new interpretation is adopted.

Voter	Entity	Segment	Vote	Comment
Wayne Guttormson	SaskPower	1	Abstain	Why it it necessary to list devices at the end of R17 that are for reference purposes only? If they do not have any mandatory calibration or accuracy requirements they should be removed from the standard.
Response: Making changes to the requirements cannot be accomplished with an interpretation.				
William Franklin	Entergy Services, Inc.	6	Affirmative	The interpretation still appears to conflict with the previous interpretation with respect to devices "within the control room" and "outside of the control room". This appears to be an issue with how the standards process deals with previous interpretations and if they should be superseded if another interpretation provides further clarification on the same issue.
Response: NERC staff will ask the NERC BOT to retire the May 2, 2007 interpretation when the BOT adopts the new interpretation.				
Jacquie Smith	ReliabilityFirst Corporation	10	Negative	Comments from ReliabilityFirst Corporation regarding Interpretation of BAL-005-1, It appears as though the latest interpretation contradicts the earlier one with regard to adherence to minimum values for the measuring devices listed. If this is the intent, the latest interpretation should state that it over-rides any or all previous interpretations. It appears that some of the device accuracy information for the measuring devices listed in the table does not apply to this requirement. Superfluous information should be removed for clarity. The interpretation should state the purpose of the accuracy requirement. The latest interpretation is correct in that it limits the calibration and accuracy to the proper devices.
Response: NERC staff will ask the NERC BOT to retire the May 2, 2007 interpretation when the BOT adopts the new interpretation.				

January 11, 2008

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Ballot Results	
Ballot Name:	Request for Interpretation - BAL-005-1, R17 - PGE_in
Ballot Period:	12/19/2007 - 1/4/2008
Ballot Type:	Initial
Total # Votes:	206
Total Ballot Pool:	243
Quorum:	**84.77 % The Quorum has been reached**
Weighted Segment Vote:	98.44 %
Ballot Results:	**The standard will proceed to recirculation ballot.**

Summary of Ballot Results

Segment	Ballot Pool	Segment Weight	Affirmative # Votes	Affirmative Fraction	Negative # Votes	Negative Fraction	Abstain # Votes	No Vote
1 - Segment 1.	70	1	56	1	0	0	4	10
2 - Segment 2.	10	1	10	1	0	0	0	0
3 - Segment 3.	59	1	42	0.977	1	0.023	7	9
4 - Segment 4.	14	1	10	1	0	0	0	4
5 - Segment 5.	44	1	31	1	0	0	5	8
6 - Segment 6.	23	1	17	1	0	0	3	3
7 - Segment 7.	3	0	0	0	0	0	1	2
8 - Segment 8.	3	0.3	3	0.3	0	0	0	0
9 - Segment 9.	9	0.8	8	0.8	0	0	0	1
10 - Segment 10.	8	0.8	7	0.7	1	0.1	0	0
Totals	**243**	**7.9**	**184**	**7.777**	**2**	**0.123**	**20**	**37**

Individual Ballot Pool Results

Segment	Organization	Member	Ballot	Comments
1	AEP Service Corp. -- Transmission System AEP	Scott P. Moore	Affirmative	
1	Allegheny Power	Rodney Phillips	Affirmative	
1	Alliant Energy	Kenneth Goldsmith	Affirmative	
1	Ameren Services Company	Kirit S. Shah	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Affirmative	
1	Associated Electric Cooperative, Inc.	John Bussman	Affirmative	
1	Avista Corp.	Scott Kinney	Affirmative	
1	Baltimore Gas & Electric Company	John J. Moraski	Abstain	
1	Basin Electric Power Cooperative	David Rudolph	Affirmative	
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	

1	Central Maine Power Company	David Mark Conroy		
1	Consolidated Edison Co. of New York	Edwin E. Thompson PE	Affirmative	
1	Dominion Virginia Power	William L. Thompson	Abstain	
1	Duke Energy Carolina	Douglas E. Hils	Affirmative	
1	Duquesne Light Co.	Bob McClelland		
1	East Kentucky Power Coop.	George S. Carruba	Affirmative	
1	Empire District Electric Co.	Ralph Frederick Meyer	Affirmative	
1	Entergy Corporation	George R. Bartlett	Affirmative	
1	FirstEnergy Energy Delivery	Robert Martinko	Affirmative	
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton	Affirmative	
1	Florida Power & Light Co.	C. Martin Mennes	Affirmative	
1	Great River Energy	Gordon Pietsch	Affirmative	
1	Hoosier Energy Rural Electric Cooperative, Inc.	Damon Holladay	Affirmative	
1	Hydro One Networks, Inc.	Ajay Garg		
1	Idaho Power Company	Ronald D. Schellberg	Affirmative	
1	ITC Transmission	Brian F. Thumm		
1	JEA	Ted E. Hobson	Affirmative	
1	Kansas City Power & Light Co.	Jim Useldinger		
1	Keyspan LIPA	Richard J. Bolbrock	Affirmative	
1	LG&E Energy Transmission Services	Bradley Young		
1	Lincoln Electric System	Doug Bantam	Affirmative	
1	Manitoba Hydro	Robert G. Coish	Affirmative	
1	Minnesota Power, Inc.	Carol Gerou	Affirmative	
1	Municipal Electric Authority of Georgia	Jerry J Tang	Affirmative	
1	New Brunswick Power Transmission Corporation	Wayne N. Snowdon	Affirmative	
1	New York Power Authority	Ralph Rufrano	Affirmative	
1	Northeast Utilities	David H. Boguslawski	Abstain	
1	Northern Indiana Public Service Co.	Joseph Dobes	Affirmative	
1	Nova Scotia Power Inc.	David D. Little	Affirmative	
1	Ohio Valley Electric Corp.	Robert Mattey	Affirmative	
1	Oklahoma Gas and Electric Co.	Melvin H. Perkins		
1	Oncor Electric Delivery	Charles W. Jenkins	Affirmative	
1	Otter Tail Power Company	Lawrence R. Larson	Affirmative	
1	Pacific Gas and Electric Company	Chifong L. Thomas		
1	PacifiCorp	Robert Williams	Affirmative	
1	Potomac Electric Power Co.	Richard J. Kafka	Affirmative	
1	PP&L, Inc.	Ray Mammarella	Affirmative	
1	Progress Energy Carolinas	Sammy Roberts	Affirmative	
1	Public Service Company of New Mexico	Keith Nix	Affirmative	
1	Public Service Electric and Gas Co.	Kenneth D. Brown	Affirmative	
1	Sacramento Municipal Utility District	Dilip Mahendra	Affirmative	
1	Salt River Project	Robert Kondziolka	Affirmative	
1	San Diego Gas & Electric	Linda Brown		
1	Santee Cooper	Terry L. Blackwell	Affirmative	
1	SaskPower	Wayne Guttormson	Abstain	View
1	SCE&G	Henry Delk, Jr.	Affirmative	
1	Seattle City Light	Christopher M. Turner	Affirmative	
1	Sierra Pacific Power Co.	Richard Salgo	Affirmative	
1	South Carolina Electric & Gas Co.	Lee N. Xanthakos		
1	Southern California Edison Co.	Dana Cabbell	Affirmative	
1	Southern Company Services, Inc.	Horace Stephen Williamson	Affirmative	

1	Southern Illinois Power Coop.	William G. Hutchison	Affirmative	
1	Southwest Transmission Cooperative, Inc.	James L. Jones	Affirmative	
1	Tennessee Valley Authority	Larry Akens	Affirmative	
1	Tri-State G & T Association Inc.	Bruce A Sembrick	Affirmative	
1	Tucson Electric Power Co.	Ronald P. Belval	Affirmative	
1	Westar Energy	Allen Klassen	Affirmative	
1	Western Area Power Administration	Robert Temple	Affirmative	
1	Western Farmers Electric Coop.	Alan Derichsweiler	Affirmative	
1	Xcel Energy, Inc.	Gregory L. Pieper	Affirmative	
2	Alberta Electric System Operator	Anita Lee	Affirmative	
2	British Columbia Transmission Corporation	Phil Park	Affirmative	
2	California ISO	David Hawkins	Affirmative	
2	Electric Reliability Council of Texas, Inc.	Roy D. McCoy	Affirmative	
2	Independent Electricity System Operator	Don Tench	Affirmative	
2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Affirmative	
2	New Brunswick System Operator	Alden Briggs	Affirmative	
2	New York Independent System Operator	Gregory Campoli	Affirmative	
2	PJM Interconnection, L.L.C.	Tom Bowe	Affirmative	
3	Alabama Power Company	Robin Hurst	Affirmative	
3	Allegheny Power	Bob Reeping	Affirmative	
3	Ameren Services Company	Mark Peters	Affirmative	
3	American Electric Power	Raj Rana	Affirmative	
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	Avista Corp.	Robert Lafferty	Affirmative	
3	BC Hydro and Power Authority	Pat G. Harrington	Abstain	
3	Blue Ridge Power Agency	Duane S. Dahlquist		
3	Bonneville Power Administration	Rebecca Berdahl		
3	City of Tallahassee	Rusty S. Foster	Abstain	
3	City Public Service of San Antonio	Edwin Les Barrow	Affirmative	
3	Cleco Utility Group	Bryan Y Harper	Abstain	
3	Constellation Energy	Carolyn Ingersoll	Affirmative	
3	Consumers Energy Co.	David A. Lapinski	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Affirmative	
3	Duke Energy Carolina	Henry Ernst-Jr	Affirmative	
3	Entergy Services, Inc.	Matt Wolf	Affirmative	
3	Farmington Electric Utility System	Alan Glazner	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Affirmative	
3	Florida Municipal Power Agency	Michael Alexander	Affirmative	
3	Florida Power & Light Co.	W.R. Schoneck	Affirmative	
3	Florida Power Corporation	Lee Schuster	Affirmative	
3	Georgia Power Company	Leslie Sibert	Affirmative	
3	Grays Harbor PUD	Wesley W Gray		
3	Great River Energy	Sam Kokkinen	Affirmative	
3	Gulf Power Company	Gwen S Frazier	Affirmative	
3	Hydro One Networks, Inc.	Michael D. Penstone		
3	JEA	Garry Baker	Negative	
3	Kissimmee Utility Authority	Gregory David Woessner	Affirmative	
3	Lincoln Electric System	Bruce Merrill	Affirmative	

3	Louisville Gas and Electric Co.	Charles A. Freibert	Affirmative	
3	Manitoba Hydro	Ronald Dacombe		
3	MAPPCOR	Peter A. Koegel	Abstain	
3	MidAmerican Energy Co.	Thomas C. Mielnik	Affirmative	
3	Mississippi Power	Don Horsley	Affirmative	
3	New York Power Authority	Christopher Lawrence de Graffenried	Affirmative	
3	Niagara Mohawk (National Grid Company)	Michael Schiavone	Affirmative	
3	Oklahoma Gas and Electric Co.	Gary Clear	Abstain	
3	Orlando Utilities Commission	Ballard Keith Mutters	Affirmative	
3	PECO Energy an Exelon Co.	John J. McCawley	Abstain	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Affirmative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Service Electric and Gas Co.	Jeffrey Mueller	Affirmative	
3	Public Utility District No. 1 of Chelan County	Kenneth R. Johnson	Affirmative	
3	Public Utility District No. 2 of Grant County	Greg Lange	Affirmative	
3	Reliant Energy Services	John Meyer		
3	Salt River Project	John T. Underhill	Affirmative	
3	San Diego Gas & Electric	Scott Peterson		
3	Santee Cooper	Zack Dusenbury	Affirmative	
3	SaskPower	Jeff Gienow	Abstain	
3	Seattle City Light	Dana Wheelock	Affirmative	
3	Tampa Electric Co.	Ronald L. Donahey		
3	Tennessee Valley Authority	Cynthia Herron		
3	Wisconsin Electric Power Marketing	James R. Keller	Affirmative	
3	Wisconsin Public Service Corp.	James A. Maenner	Affirmative	
3	Xcel Energy, Inc.	Michael Ibold	Affirmative	
4	American Municipal Power - Ohio	Chris Norton	Affirmative	
4	Consumers Energy Co.	David Frank Ronk	Affirmative	
4	Florida Municipal Power Agency	Ralph Anderson	Affirmative	
4	LaGen	Keith Comeaux		
4	Municipal Electric Utilities Association of New York	Timothy R. Bush		
4	Municipal Energy Agency of Nebraska	John Krajewski		
4	Northern California Power Agency	Fred E. Young	Affirmative	
4	Old Dominion Electric Coop.	Mark Ringhausen	Affirmative	
4	Public Utility District No. 1 of Douglas County	Henry E. LuBean	Affirmative	
4	Reedy Creek Improvement District	Doug Wagner	Affirmative	
4	Seattle City Light	Hao Li	Affirmative	
4	Seminole Electric Cooperative, Inc.	Steven R. Wallace	Affirmative	
4	South Mississippi Electric Power Association	Dan Kay		
4	Wisconsin Energy Corp.	Anthony Jankowski	Affirmative	
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Alabama Electric Coop. Inc.	Tim Hattaway	Affirmative	
5	American National Power, Inc.	Dorothy Capra		
5	APGI - Yadkin Division	Alan Jones	Abstain	
5	Avista Corp.	Edward F. Groce	Affirmative	
5	BC Hydro and Power Authority	Clement Ma	Affirmative	
5	Black Hills Power	Pamela Pahl	Affirmative	
5	Bonneville Power Administration	Francis J. Halpin	Affirmative	
5	City of Tallahassee	Alan Gale	Affirmative	
	City Water, Light & Power of			

5	Springfield	Karl E. Kohlrus	Affirmative	
5	Colmac Clarion/Piney Creek LP	Harvie D. Beavers	Affirmative	
5	Conectiv Energy Supply, Inc.	Richard K. Douglass	Affirmative	
5	Constellation Generation Group	Michael F. Gildea	Abstain	
5	Dairyland Power Coop.	Warren Schaefer	Affirmative	
5	Detroit Edison Company	Ronald W. Bauer	Affirmative	
5	Dominion Energy	Harold W. Adams	Affirmative	
5	East Kentucky Power Coop.	Gerard Bordes		
5	Exelon Nuclear	Michael Korchynsky	Abstain	
5	FirstEnergy Solutions	Kenneth Dresner		
5	Florida Municipal Power Agency	Douglas Keegan	Affirmative	
5	Florida Power & Light Co.	Robert A. Birch	Affirmative	
5	Gainesville Regional Utilities	Mark Bennett	Affirmative	
5	Great River Energy	Cynthia E Sulzer	Affirmative	
5	JEA	Donald Gilbert	Affirmative	
5	Lincoln Electric System	Dennis Florom	Affirmative	
5	Louisville Gas and Electric Co.	Charlie Martin	Affirmative	
5	Manitoba Hydro	Mark Aikens	Affirmative	
5	New York Power Authority	Richard J. Ardolino	Affirmative	
5	Oklahoma Gas and Electric Co.	Kim Morphis	Abstain	
5	PPL Generation LLC	Mark A. Heimbach	Affirmative	
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	
5	PSEG Power LLC	Thomas Piascik		
5	Reedy Creek Energy Services	Bernie Budnik	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Seattle City Light	Michael J. Haynes	Affirmative	
5	Seminole Electric Cooperative, Inc.	Brenda K. Atkins		
5	South Carolina Electric & Gas Co.	Richard Jones	Affirmative	
5	Southeastern Power Administration	Douglas Spencer	Affirmative	
5	Southern Company Services, Inc.	Roger D. Green	Affirmative	
5	Tenaska, Inc.	Scott M. Helyer	Abstain	
5	TXU Generation Company LP	Rickey Terrill		
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan		
5	Wisconsin Electric Power Co.	Linda Horn	Affirmative	
5	Xcel Energy, Inc.	Stephen J. Beuning		
6	AEP Service Corp.	Dana E. Horton	Affirmative	
6	Black Hills Power	Larry Williamson	Affirmative	
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	
6	Dominion Energy Marketing	Lou Oberski	Affirmative	
6	Entergy Services, Inc.	William Franklin	Affirmative	View
6	Exelon Power Team	Pulin Shah	Abstain	
6	Florida Municipal Power Agency	Robert C. Williams		
6	Great River Energy	Donna Stephenson	Affirmative	
6	Lincoln Electric System	Eric Ruskamp	Affirmative	
6	Louisville Gas and Electric Co.	Daryn Barker	Affirmative	
6	Manitoba Hydro	Daniel Prowse	Affirmative	
6	New York Power Authority	Thomas Papadopoulos	Affirmative	
6	PP&L, Inc.	Thomas Hyzinski	Affirmative	
6	Progress Energy Carolinas	James Eckelkamp	Abstain	
6	Public Utility District No. 1 of Chelan County	Hugh A. Owen	Affirmative	
6	Salt River Project	Mike Hummel	Affirmative	
6	Santee Cooper	Suzanne Ritter	Affirmative	
6	South Carolina Electric & Gas Co.	John E Folsom, Jr.	Abstain	
6	Split Rock Energy LLC	Donna Stephenson		
6	Tampa Electric Co.	Jose Benjamin Quintas		
6	Tenaska Power Services Co.	Cliff T Richardson	Affirmative	

6	Western Area Power Administration - UGP Marketing	John Stonebarger	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	
7	Eastman Chemical Company	Lloyd Webb	Abstain	
7	Praxair Inc.	David Meade		
7	Steel Manufacturers Association	James Brew		
8	Energy Mark, Inc.	Howard F. Illian	Affirmative	
8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
8	Other	Michehl R. Gent	Affirmative	
9	California Energy Commission	William Mitchell Chamberlain	Affirmative	
9	California Public Utilities Commission	Laurence Chaset	Affirmative	
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Affirmative	
9	Minnesota Public Utilities Commission	Ken Wolf		
9	National Association of Regulatory Utility Commissioners	Diane J. Barney	Affirmative	
9	North Carolina Utilities Commission	Kimberly J. Jones	Affirmative	
9	Public Service Commission of South Carolina	Philip Riley	Affirmative	
9	Public Utilities Commission of Ohio	Klaus Lambeck	Affirmative	
9	Wyoming Public Service Commission	Steve Oxley	Affirmative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Affirmative	
10	Florida Reliability Coordinating Council	Linda Campbell	Affirmative	
10	Midwest Reliability Organization	Larry Brusseau	Affirmative	
10	New York State Reliability Council	Alan Adamson	Affirmative	
10	Northeast Power Coordinating Council, Inc.	Edward A. Schwerdt	Affirmative	
10	ReliabilityFirst Corporation	Jacquie Smith	Negative	View
10	Southwest Power Pool	Charles H. Yeung	Affirmative	
10	Western Electricity Coordinating Council	Louise McCarren	Affirmative	

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NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement:
Initial Ballot Results
January 7, 2008

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

The Standards Committee (SC) announces the following:

Initial Ballot Results for Interpretation of Requirement R17 in BAL-005-1 — Automatic Generation Control

The initial ballot for the interpretation of Requirement R17 in BAL-005-1 — Automatic Generation Control was conducted from December 19, 2007 through January 4, 2008.

Portland General Electric Company submitted a Request for an Interpretation of BAL-005-1 Automatic Generation Control, Requirement R17. The request asked if the requirement to annually check and calibrate time error and frequency devices applies to the following measuring devices:

- Only equipment within the operations control room
- Only equipment that provides values used to calculate automatic generation control area control error
- Only equipment that provides values to its SCADA system
- Only equipment owned or operated by the balancing authority
- Only to new or replacement equipment
- To all equipment that a balancing authority owns or operates

The Frequency Task Force (drafting team) provided an interpretation that clarifies that Requirement R17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the area control error (ACE) equation or provide real-time time error or frequency information to the system operator. The requirement does not apply to frequency inputs from other sources that are for reference only. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the balancing authority; however, the balancing authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in Requirement R17 — the other devices listed in the table at the end of Requirement R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

The ballot achieved a quorum; however, there was a negative ballot with a comment, initiating the need to review the comment and determine whether the interpretation needs modification before proceeding to a recirculation ballot. The drafting team will be reviewing all comments submitted with the initial ballots and will prepare its consideration of those comments. (Detailed Ballot Results)

Quorum:	84.77 %
Approval:	98.44 %

Standards Development Process

The NERC posting and balloting procedures are described in the *Reliability Standards Development Procedure Manual*, which contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

Please send questions to Maureen Long at maureen.long@nerc.net, or call 813-468-5998.

Sincerely,

Maureen E. Long

Maureen Long
Standards Process Manager
maureen.long@nerc.net
813-468-5998

cc: Registered Ballot Body Registered Users
Standards Mailing List
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NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Interpretation of BAL-005-1 Automatic Generation Control, R17

Request for Clarification received from PGE on July 31, 2007

PGE requests clarification regarding the measuring devices for which the requirement applies, specifically clarification if the requirement applies to the following measuring devices:

- *Only equipment within the operations control room*
- *Only equipment that provides values used to calculate AGC ACE*
- *Only equipment that provides values to its SCADA system*
- *Only equipment owned or operated by the BA*
- *Only to new or replacement equipment*
- *To all equipment that a BA owns or operates*

BAL-005-1

R17. Each Balancing Authority shall at least annually check and calibrate its time error and frequency devices against a common reference. The Balancing Authority shall adhere to the minimum values for measuring devices as listed below:

Device	Accuracy
Digital frequency transducer	≤ 0.001 Hz
MW, MVAR, and voltage transducer	≤ 0.25% of full scale
Remote terminal unit	≤ 0.25% of full scale
Potential transformer	≤ 0.30% of full scale
Current transformer	≤ 0.50% of full scale

Existing Interpretation Approved by Board of Trustees May 2, 2007

BAL-005-0, Requirement 17 requires that the Balancing Authority check and calibrate its control room time error and frequency devices against a common reference at least annually. The requirement to "annually check and calibrate" does not address any devices outside of the operations control room.

The table represents the design accuracy of the listed devices. There is no requirement within the standard to "annually check and calibrate" the devices listed in the table, unless they are included in the control center time error and frequency devices.

Interpretation provided by NERC Frequency Task Force on September 7, 2007 and Revised on November 16, 2007

As noted in the existing interpretation, BAL-005-1 Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the reporting or compliance ACE equation or provide real-time time error or frequency information to the system operator. Frequency inputs from other sources that are for reference only are excluded. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the Balancing Authority; however the Balancing Authority has the responsibility for the accuracy of the frequency and time error measurement devices. No other devices are included in R 17.

The other devices listed in the table at the end of R17 are for reference only and do not have any mandatory calibration or accuracy requirements.

New or replacement equipment that provides the same functions noted above requires the same calibrations. Some devices used for time error and frequency measurement cannot be calibrated as such. In this case, these devices should be cross-checked against other properly calibrated equipment and replaced if the devices do not meet the required level of accuracy.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Standards Announcement:
Recirculation Ballot Window Opens
January 14, 2008

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

The Standards Committee (SC) announces the following:

Recirculation Ballot Window for Interpretation of VAR-001-0 Requirement R4 (for Dynegy) is Open

The recirculation ballot for the Interpretation of R4 in VAR-001-1 — Voltage and Reactive Control requested by Dynegy is open through 8 p.m. (EST) on Wednesday, January 23, 2007. The Standards Committee encourages all members of the Ballot Pool to review the consideration of initial ballot comments.

Members of the ballot pool may:

- Reconsider and change their vote from the first ballot.
- Vote in the second ballot even if they did not vote on the first ballot.
- Take no action if they do not want to change their original vote.

In the recirculation ballot, votes are counted by exception only — if a Ballot Pool member does not submit a revision to that member's original vote, the vote remains the same as in the first ballot.

Recirculation Ballot Window for Revised Interpretation of BAL-005-1 Requirement R17 (for PGE) is Open

The recirculation ballot for the Revised Interpretation of R17 inBal-005-1 — Automatic Generation Control requested by Portland General Electric is open through 8 p.m. (EST) on Wednesday, January 23, 2007. The Standards Committee encourages all members of the Ballot Pool to review the consideration of initial ballot comments.

Members of the ballot pool may:

- Reconsider and change their vote from the first ballot.
- Vote in the second ballot even if they did not vote on the first ballot.
- Take no action if they do not want to change their original vote.

In the recirculation ballot, votes are counted by exception only — if a Ballot Pool member does not submit a revision to that member's original vote, the vote remains the same as in the first ballot.

Standards Development Process

The NERC posting and balloting procedures are described in the *Reliability Standards Development Procedure Manual*, which contains all the procedures governing the standards

development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

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Sincerely,

Maureen E. Long

Maureen Long
Standards Process Manager
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cc: Registered Ballot Body Registered Users
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Ballot Results	
Ballot Name:	Request for Interpretation - BAL-005-1, R17 - PGE_rc
Ballot Period:	1/14/2008 - 1/23/2008
Ballot Type:	recirculation
Total # Votes:	213
Total Ballot Pool:	243
Quorum:	**87.65 % The Quorum has been reached**
Weighted Segment Vote:	98.17 %
Ballot Results:	**The Standard has Passed**

Summary of Ballot Results

Segment	Ballot Pool	Segment Weight	Affirmative # Votes	Affirmative Fraction	Negative # Votes	Negative Fraction	Abstain # Votes	No Vote
1 - Segment 1.	70	1	56	1	0	0	6	8
2 - Segment 2.	10	1	10	1	0	0	0	0
3 - Segment 3.	59	1	45	0.957	2	0.043	6	6
4 - Segment 4.	14	1	10	1	0	0	1	3
5 - Segment 5.	44	1	32	1	0	0	5	7
6 - Segment 6.	23	1	17	1	0	0	3	3
7 - Segment 7.	3	0	0	0	0	0	1	2
8 - Segment 8.	3	0.3	3	0.3	0	0	0	0
9 - Segment 9.	9	0.7	7	0.7	0	0	1	1
10 - Segment 10.	8	0.8	7	0.7	1	0.1	0	0
Totals	**243**	**7.8**	**187**	**7.657**	**3**	**0.143**	**23**	**30**

Individual Ballot Pool Results

Segment	Organization	Member	Ballot	Comments
1	AEP Service Corp. -- Transmission System AEP	Scott P. Moore	Affirmative	
1	Allegheny Power	Rodney Phillips	Affirmative	
1	Alliant Energy	Kenneth Goldsmith	Affirmative	
1	Ameren Services Company	Kirit S. Shah	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Affirmative	
1	Associated Electric Cooperative, Inc.	John Bussman	Affirmative	
1	Avista Corp.	Scott Kinney	Affirmative	
1	Baltimore Gas & Electric Company	John J. Moraski	Abstain	
1	Basin Electric Power Cooperative	David Rudolph	Affirmative	
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	

1	Central Maine Power Company	David Mark Conroy		
1	Consolidated Edison Co. of New York	Edwin E. Thompson PE	Affirmative	
1	Dominion Virginia Power	William L. Thompson	Abstain	
1	Duke Energy Carolina	Douglas E. Hils	Affirmative	
1	Duquesne Light Co.	Bob McClelland		
1	East Kentucky Power Coop.	George S. Carruba	Affirmative	
1	Empire District Electric Co.	Ralph Frederick Meyer	Affirmative	
1	Entergy Corporation	George R. Bartlett	Affirmative	
1	FirstEnergy Energy Delivery	Robert Martinko	Affirmative	
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton	Affirmative	
1	Florida Power & Light Co.	C. Martin Mennes	Affirmative	
1	Great River Energy	Gordon Pietsch	Affirmative	
1	Hoosier Energy Rural Electric Cooperative, Inc.	Damon Holladay	Affirmative	
1	Hydro One Networks, Inc.	Ajay Garg	Affirmative	
1	Idaho Power Company	Ronald D. Schellberg	Affirmative	
1	ITC Transmission	Brian F. Thumm		
1	JEA	Ted E. Hobson	Affirmative	
1	Kansas City Power & Light Co.	Jim Useldinger	Affirmative	
1	Keyspan LIPA	Richard J. Bolbrock	Abstain	
1	LG&E Energy Transmission Services	Bradley Young		
1	Lincoln Electric System	Doug Bantam	Affirmative	
1	Manitoba Hydro	Robert G. Coish	Affirmative	
1	Minnesota Power, Inc.	Carol Gerou	Affirmative	
1	Municipal Electric Authority of Georgia	Jerry J Tang	Affirmative	
1	New Brunswick Power Transmission Corporation	Wayne N. Snowdon	Affirmative	
1	New York Power Authority	Ralph Rufrano	Abstain	
1	Northeast Utilities	David H. Boguslawski	Abstain	
1	Northern Indiana Public Service Co.	Joseph Dobes	Affirmative	
1	Nova Scotia Power Inc.	David D. Little	Affirmative	
1	Ohio Valley Electric Corp.	Robert Mattey	Affirmative	
1	Oklahoma Gas and Electric Co.	Melvin H. Perkins		
1	Oncor Electric Delivery	Charles W. Jenkins	Affirmative	
1	Otter Tail Power Company	Lawrence R. Larson	Affirmative	
1	Pacific Gas and Electric Company	Chifong L. Thomas		
1	PacifiCorp	Robert Williams	Affirmative	
1	Potomac Electric Power Co.	Richard J. Kafka	Affirmative	
1	PP&L, Inc.	Ray Mammarella	Affirmative	
1	Progress Energy Carolinas	Sammy Roberts	Affirmative	
1	Public Service Company of New Mexico	Keith Nix	Affirmative	
1	Public Service Electric and Gas Co.	Kenneth D. Brown	Affirmative	
1	Sacramento Municipal Utility District	Dilip Mahendra	Affirmative	
1	Salt River Project	Robert Kondziolka	Affirmative	
1	San Diego Gas & Electric	Linda Brown		
1	Santee Cooper	Terry L. Blackwell	Affirmative	
1	SaskPower	Wayne Guttormson	Abstain	View
1	SCE&G	Henry Delk, Jr.	Affirmative	
1	Seattle City Light	Christopher M. Turner	Affirmative	
1	Sierra Pacific Power Co.	Richard Salgo	Affirmative	
1	South Carolina Electric & Gas Co.	Lee N. Xanthakos		
1	Southern California Edison Co.	Dana Cabbell	Affirmative	
1	Southern Company Services, Inc.	Horace Stephen Williamson	Affirmative	

1	Southern Illinois Power Coop.	William G. Hutchison	Affirmative	
1	Southwest Transmission Cooperative, Inc.	James L. Jones	Affirmative	
1	Tennessee Valley Authority	Larry Akens	Affirmative	
1	Tri-State G & T Association Inc.	Bruce A Sembrick	Affirmative	
1	Tucson Electric Power Co.	Ronald P. Belval	Affirmative	
1	Westar Energy	Allen Klassen	Affirmative	
1	Western Area Power Administration	Robert Temple	Affirmative	
1	Western Farmers Electric Coop.	Alan Derichsweiler	Affirmative	
1	Xcel Energy, Inc.	Gregory L. Pieper	Affirmative	
2	Alberta Electric System Operator	Anita Lee	Affirmative	
2	British Columbia Transmission Corporation	Phil Park	Affirmative	
2	California ISO	David Hawkins	Affirmative	
2	Electric Reliability Council of Texas, Inc.	Roy D. McCoy	Affirmative	
2	Independent Electricity System Operator	Don Tench	Affirmative	
2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Affirmative	
2	New Brunswick System Operator	Alden Briggs	Affirmative	
2	New York Independent System Operator	Gregory Campoli	Affirmative	
2	PJM Interconnection, L.L.C.	Tom Bowe	Affirmative	
3	Alabama Power Company	Robin Hurst	Affirmative	
3	Allegheny Power	Bob Reeping	Affirmative	
3	Ameren Services Company	Mark Peters	Affirmative	
3	American Electric Power	Raj Rana	Affirmative	
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	Avista Corp.	Robert Lafferty	Affirmative	
3	BC Hydro and Power Authority	Pat G. Harrington	Abstain	
3	Blue Ridge Power Agency	Duane S. Dahlquist		
3	Bonneville Power Administration	Rebecca Berdahl	Affirmative	
3	City of Tallahassee	Rusty S. Foster	Abstain	
3	City Public Service of San Antonio	Edwin Les Barrow	Affirmative	
3	Cleco Utility Group	Bryan Y Harper	Affirmative	
3	Constellation Energy	Carolyn Ingersoll	Affirmative	
3	Consumers Energy Co.	David A. Lapinski	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Affirmative	
3	Duke Energy Carolina	Henry Ernst-Jr	Affirmative	
3	Entergy Services, Inc.	Matt Wolf	Affirmative	
3	Farmington Electric Utility System	Alan Glazner	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Affirmative	
3	Florida Municipal Power Agency	Michael Alexander	Affirmative	
3	Florida Power & Light Co.	W.R. Schoneck	Affirmative	
3	Florida Power Corporation	Lee Schuster	Affirmative	
3	Georgia Power Company	Leslie Sibert	Affirmative	
3	Grays Harbor PUD	Wesley W Gray		
3	Great River Energy	Sam Kokkinen	Affirmative	
3	Gulf Power Company	Gwen S Frazier	Affirmative	
3	Hydro One Networks, Inc.	Michael D. Penstone	Affirmative	
3	JEA	Garry Baker	Negative	
3	Kissimmee Utility Authority	Gregory David Woessner	Affirmative	
3	Lincoln Electric System	Bruce Merrill	Affirmative	

3	Louisville Gas and Electric Co.	Charles A. Freibert	Affirmative	
3	Manitoba Hydro	Ronald Dacombe	Affirmative	
3	MAPPCOR	Peter A. Koegel	Abstain	
3	MidAmerican Energy Co.	Thomas C. Mielnik	Affirmative	
3	Mississippi Power	Don Horsley	Affirmative	
3	New York Power Authority	Christopher Lawrence de Graffenried	Negative	View
3	Niagara Mohawk (National Grid Company)	Michael Schiavone	Affirmative	
3	Oklahoma Gas and Electric Co.	Gary Clear	Abstain	
3	Orlando Utilities Commission	Ballard Keith Mutters	Affirmative	
3	PECO Energy an Exelon Co.	John J. McCawley	Abstain	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Affirmative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Service Electric and Gas Co.	Jeffrey Mueller	Affirmative	
3	Public Utility District No. 1 of Chelan County	Kenneth R. Johnson	Affirmative	
3	Public Utility District No. 2 of Grant County	Greg Lange	Affirmative	
3	Reliant Energy Services	John Meyer		
3	Salt River Project	John T. Underhill	Affirmative	
3	San Diego Gas & Electric	Scott Peterson		
3	Santee Cooper	Zack Dusenbury	Affirmative	
3	SaskPower	Jeff Gienow	Abstain	
3	Seattle City Light	Dana Wheelock	Affirmative	
3	Tampa Electric Co.	Ronald L. Donahey		
3	Tennessee Valley Authority	Cynthia Herron		
3	Wisconsin Electric Power Marketing	James R. Keller	Affirmative	
3	Wisconsin Public Service Corp.	James A. Maenner	Affirmative	
3	Xcel Energy, Inc.	Michael Ibold	Affirmative	
4	American Municipal Power - Ohio	Chris Norton	Affirmative	
4	Consumers Energy Co.	David Frank Ronk	Affirmative	
4	Florida Municipal Power Agency	Ralph Anderson	Affirmative	
4	LaGen	Keith Comeaux	Abstain	
4	Municipal Electric Utilities Association of New York	Timothy R. Bush		
4	Municipal Energy Agency of Nebraska	John Krajewski		
4	Northern California Power Agency	Fred E. Young	Affirmative	
4	Old Dominion Electric Coop.	Mark Ringhausen	Affirmative	
4	Public Utility District No. 1 of Douglas County	Henry E. LuBean	Affirmative	
4	Reedy Creek Improvement District	Doug Wagner	Affirmative	
4	Seattle City Light	Hao Li	Affirmative	
4	Seminole Electric Cooperative, Inc.	Steven R. Wallace	Affirmative	
4	South Mississippi Electric Power Association	Dan Kay		
4	Wisconsin Energy Corp.	Anthony Jankowski	Affirmative	
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Alabama Electric Coop. Inc.	Tim Hattaway	Affirmative	
5	American National Power, Inc.	Dorothy Capra		
5	APGI - Yadkin Division	Alan Jones	Abstain	
5	Avista Corp.	Edward F. Groce	Affirmative	
5	BC Hydro and Power Authority	Clement Ma	Affirmative	
5	Black Hills Power	Pamela Pahl	Affirmative	
5	Bonneville Power Administration	Francis J. Halpin	Affirmative	
5	City of Tallahassee	Alan Gale	Affirmative	
	City Water, Light & Power of			

5	Springfield	Karl E. Kohlrus	Affirmative	
5	Colmac Clarion/Piney Creek LP	Harvie D. Beavers	Affirmative	
5	Conectiv Energy Supply, Inc.	Richard K. Douglass	Affirmative	
5	Constellation Generation Group	Michael F. Gildea	Abstain	
5	Dairyland Power Coop.	Warren Schaefer	Affirmative	
5	Detroit Edison Company	Ronald W. Bauer	Affirmative	
5	Dominion Energy	Harold W. Adams	Affirmative	
5	East Kentucky Power Coop.	Gerard Bordes		
5	Exelon Nuclear	Michael Korchynsky	Abstain	
5	FirstEnergy Solutions	Kenneth Dresner		
5	Florida Municipal Power Agency	Douglas Keegan	Affirmative	
5	Florida Power & Light Co.	Robert A. Birch	Affirmative	
5	Gainesville Regional Utilities	Mark Bennett	Affirmative	
5	Great River Energy	Cynthia E Sulzer	Affirmative	
5	JEA	Donald Gilbert	Affirmative	
5	Lincoln Electric System	Dennis Florom	Affirmative	
5	Louisville Gas and Electric Co.	Charlie Martin	Affirmative	
5	Manitoba Hydro	Mark Aikens	Affirmative	
5	New York Power Authority	Richard J. Ardolino	Affirmative	
5	Oklahoma Gas and Electric Co.	Kim Morphis	Abstain	
5	PPL Generation LLC	Mark A. Heimbach	Affirmative	
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	
5	PSEG Power LLC	Thomas Piascik		
5	Reedy Creek Energy Services	Bernie Budnik	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Seattle City Light	Michael J. Haynes	Affirmative	
5	Seminole Electric Cooperative, Inc.	Brenda K. Atkins		
5	South Carolina Electric & Gas Co.	Richard Jones	Affirmative	
5	Southeastern Power Administration	Douglas Spencer	Affirmative	
5	Southern Company Services, Inc.	Roger D. Green	Affirmative	
5	Tenaska, Inc.	Scott M. Helyer	Abstain	
5	TXU Generation Company LP	Rickey Terrill		
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan	Affirmative	
5	Wisconsin Electric Power Co.	Linda Horn	Affirmative	
5	Xcel Energy, Inc.	Stephen J. Beuning		
6	AEP Service Corp.	Dana E. Horton	Affirmative	
6	Black Hills Power	Larry Williamson	Affirmative	
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	
6	Dominion Energy Marketing	Lou Oberski	Affirmative	
6	Entergy Services, Inc.	William Franklin	Affirmative	View
6	Exelon Power Team	Pulin Shah	Abstain	
6	Florida Municipal Power Agency	Robert C. Williams		
6	Great River Energy	Donna Stephenson	Affirmative	
6	Lincoln Electric System	Eric Ruskamp	Affirmative	
6	Louisville Gas and Electric Co.	Daryn Barker	Affirmative	
6	Manitoba Hydro	Daniel Prowse	Affirmative	
6	New York Power Authority	Thomas Papadopoulos	Abstain	
6	PP&L, Inc.	Thomas Hyzinski	Affirmative	
6	Progress Energy Carolinas	James Eckelkamp	Affirmative	
6	Public Utility District No. 1 of Chelan County	Hugh A. Owen	Affirmative	
6	Salt River Project	Mike Hummel	Affirmative	
6	Santee Cooper	Suzanne Ritter	Affirmative	
6	South Carolina Electric & Gas Co.	John E Folsom, Jr.	Abstain	
6	Split Rock Energy LLC	Donna Stephenson		
6	Tampa Electric Co.	Jose Benjamin Quintas		
6	Tenaska Power Services Co.	Cliff T Richardson	Affirmative	

6	Western Area Power Administration - UGP Marketing	John Stonebarger	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	
7	Eastman Chemical Company	Lloyd Webb	Abstain	
7	Praxair Inc.	David Meade		
7	Steel Manufacturers Association	James Brew		
8	Energy Mark, Inc.	Howard F. Illian	Affirmative	
8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
8	Other	Michehl R. Gent	Affirmative	
9	California Energy Commission	William Mitchell Chamberlain	Affirmative	
9	California Public Utilities Commission	Laurence Chaset	Affirmative	
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Affirmative	
9	Minnesota Public Utilities Commission	Ken Wolf		
9	National Association of Regulatory Utility Commissioners	Diane J. Barney	Affirmative	
9	North Carolina Utilities Commission	Kimberly J. Jones	Affirmative	
9	Public Service Commission of South Carolina	Philip Riley	Affirmative	
9	Public Utilities Commission of Ohio	Klaus Lambeck	Abstain	
9	Wyoming Public Service Commission	Steve Oxley	Affirmative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Affirmative	
10	Florida Reliability Coordinating Council	Linda Campbell	Affirmative	
10	Midwest Reliability Organization	Larry Brusseau	Affirmative	
10	New York State Reliability Council	Alan Adamson	Affirmative	
10	Northeast Power Coordinating Council, Inc.	Edward A. Schwerdt	Affirmative	
10	ReliabilityFirst Corporation	Jacquie Smith	Negative	View
10	Southwest Power Pool	Charles H. Yeung	Affirmative	
10	Western Electricity Coordinating Council	Louise McCarren	Affirmative	

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116-390 Village Boulevard, Princeton, New Jersey 08540-5721

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Maureen E. Long
Standards Process Manager

January 25, 2007

Re: Final Ballot Results

The Standards Committee (SC) announces the following:

Final Ballot Results for Interpretation of BAL-005-1 — Automatic Generation Control, Requirement 17

The recirculation ballot for the revised interpretation of BAL-005-1 — Automatic Generation Control, Requirement 17 for Portland General Electric Company was conducted from January 14–23, 2008 and the ballot passed. (Detailed Ballot Results)

Quorum: 87.65 %
Approval: 98.17 %

The Interpretation clarifies that in reliability standard BAL-005-1, Requirement 17 applies only to the time error and frequency devices that provide, or in the case of back-up equipment may provide, input into the area control error (ACE) equation or provide real-time time error or frequency information to the system operator. The requirement does not apply to frequency inputs from other sources that are for reference only. The time error and frequency measurement devices may not necessarily be located in the system operations control room or owned by the balancing authority; however, the balancing authority has the responsibility for the accuracy of the frequency and time error measurement devices.

This interpretation for Portland General Electric Company expands on the previous interpretation of BAL-005-1 Requirement 17 developed for R.W. Beck that was approved by the Board of Trustees on May 2, 2007. If the Board of Trustees approves the interpretation for Portland General Electric, the interpretation for R.W. Beck will be retired.

Final Ballot Results for Interpretation of VAR-001-1 — Voltage and Reactive Control, Requirement 4

The recirculation ballot for the interpretation of VAR-001-1 — Voltage and Reactive Control, Requirement 4 for Dynegy was conducted from January 14–23, 2008 and the ballot passed. (Detailed Ballot Results)

Quorum: 89.67 %
Approval: 93.18 %

The Interpretation clarifies that VAR-001-1, Requirement 4 does not include any language regarding the "quality" of the transmission operator's voltage or reactive power schedule.

Standards Development Process

The *Reliability Standards Development Procedure* contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate. If you have any questions, please contact me at 813-468-5998 or maureen.long@nerc.net.

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BAL-005-1

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